The intersection of financial agency, sexual decision-making power, and HIV risk among adolescent girls and young women in Zambia

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Abstract

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HIV incidence rates have been on the decline globally, yet certain sub-populations have seen their incidence rates increase, bearing an extraordinary share of the HIV disease burden. In Eastern and Southern Africa, the rate of new HIV infections disproportionately affects adolescent girls and young women (AGYW) with up to three times as many young women ages 15-24 living with HIV as compared to their male peers. These statistics make AGYW a key demographic for action in order to realize an AIDS-free generation. To most effectively intervene, researchers must examine the rationale for higher infection rates among young females.

Recent studies have found positive correlation between economic strengthening interventions (such as cash transfers, savings accounts, or financial literacy) and HIV sexual risk among AGYW, however, the majority of the literature to date understands these economic strengthening interventions at the household level, as a mechanism for providing insurance against economic shocks and as an incentive for keeping girls in school, a key predictor of reduced HIV. Fewer studies have sought to understand how increased resources, and power over those resources, affects the thoughts and behaviors of AGYW at the individual level. Does this enhanced agency translate into greater power in intimate relationships? Does she feel more entitled to make decisions over her own body once she has the power to meet her own basic needs? And does agency over her body inevitably translate to fewer HIV risk behaviors?

This three-paper dissertation examines data collected with AGYW living in two urban areas, characterized by HIV prevalence. These areas are the sites of a multi-sectoral DREAMS program, a public-private partnership to reduce HIV incidence in ten countries within sub-Saharan Africa (Saul et al., 2018). Paper 1 examined the construct of financial agency through the development of a scale,

finding variations in experience of financial autonomy between age cohorts with younger adolescents' autonomy correlated to a higher likelihood of being sexually active and exposure to partner violence. Financial agency was not strongly associated with HIV risk reduction variables at any age. Paper 2 sought to understand the correlational relationships between personal financial agency, sexual relationship power (SRP), and reduced sexual HIV risk for AGYW in Zambia in order to determine if SRP may be a potential mediator between financial agency and sexual HIV risk reduction. Paper 2 found that SRP within sexual relationships did convert to HIV protective behaviors and that while financial agency did correlate with SRP for the oldest cohort, financial agency on its own was not sufficient to reduce sexual HIV risk. Paper 3 explored how AGYW in Zambia understand financial agency as a construct and how it does or does not affect their power in intimate relationships. This study demonstrated that financial independence is an aspiration of AGYW, however, that autonomy is tied up with negative community-based perceptions about what it means to be a woman earning and with control over her own income. Financial independence has promise as a mechanism for sexual HIV risk reduction, specifically the reduction of transactional sex; however, the realities of male sexual privilege may remain an obstacle to risk reduction irrespective of financial decision-making power. Women's sexual agency was viewed as far greater in non-martial relationships as opposed to within marriage, where religious mores on headship created a power imbalance.

Overall, findings from this dissertation contribute empirically to the literature on economic strengthening and HIV prevention for AGYW, providing new insights on the influence of individual financial agency. Findings suggest a nuanced relationship between financial agency and sexual HIV risk reduction, one that is not necessarily linear or positively correlated. HIV prevention programs that wish to incorporate economic strengthening into their multi-sectoral models should consider the influence of gender norms and sexual relationship power which could continue to keep AGYW in positions of vulnerability regardless of their financial autonomy.

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Introduction to Dissertation

Despite a reduction in rates of new HIV infections and AIDS-related deaths globally, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated 2.1 million new HIV infections in 2015, over 60% of which were located in sub-Saharan Africa (SSA). Within this cohort, one quarter of new infections were found in adolescent girls and young women (AGYW), ages 15-24 (UNAIDS, 2016). When including younger adolescents within this estimate, incidence rates for females ages 12-24 account for one third of all new infections in SSA (MacPhail & Pettifor, 2016).

Further statistics have shown a marked gender disparity in new infections with incidence rates for females ages 12-24 surpassing that of their male peers, with estimates ranging from two to eight times higher likelihood of infection, depending on location (Dellar, Dlamini, & Karim, 2015; MacPhail & Pettifor, 2016; Mathur & Gupta, 2016). This disparity is not new as previous local estimates in HIV hot-spots identified differences in incidence rates between males and females. For instance, in Kisumu, Kenya and Ndola, Zambia, both commercial hubs, sexually active adolescent girls ages 15-19 were six times more likely to be HIV-positive as compared to male adolescents of the same age (Glynn et al., 2001). These statistics support the notion that achieving an AIDS-free generation will be impossible without targeted attention to the unique vulnerabilities of AGYW in SSA.

Yet, the large majority of HIV prevention efforts in SSA have focused on sexual and reproductive health education; HIV counseling and testing; and reduction of maternal child transmission (Padian et al., 2011). Such initiatives can be described as primarily biomedical and behavioral in their orientation towards prevention. It is only recently that policy makers and donors, emboldened by a growing evidence base, have decided to invest in strategies that address the structural drivers of HIV risk such as poverty, inequitable gender norms, and education.

One such effort is the DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe) initiative, a collaboration between the U.S. President's Emergency Plan for AIDS Relief

(PEPFAR), the Bill & Melinda Gates Foundation, Girl Effect, Johnson & Johnson, Gilead Sciences, and ViiV Healthcare to address the structural drivers that directly and indirectly increase girls' HIV risk in sub-Saharan Africa, including poverty and gender norms. Ten countries have been targeted through the DREAMS program (Kenya, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe) as they accounted for more than half of all new HIV infections among AGYW globally in 2015 (PEPFAR, 2015; Saul et al., 2018). As part of this collaboration, the Population Council has been given a broad mandate for research and capacity building of DREAMS-funded programs across the region.

This dissertation uses the Population Council's data from Zambia, one of three countries within the DREAMS program that elected to have their implementation science component focus on AGYW. Zambia has an HIV prevalence rate of 11.3 percent among adults ages 15-49 (UNAIDS, 2018) with rates of condom use under ten percent and only one third of the adolescents ages 15-19 indicating they had tested for HIV in the past 12 months (UNICEF, 2018). The most recent Population-Based HIV Impact Assessment (PBHIV) finds Zambia among the lowest of the sampled countries on awareness of HIV status, adherence to ART, and viral load suppression for AGYW ages 15-24 (Brown et al., 2018), indicating a need to better understand the HIV epidemic among this population in Zambia.

Specific Aims

This dissertation consists of three papers to explore the construct of financial agency and its relationship to HIV sexual risk for AGYW in Zambia. Data for Papers 1 and 2 were pulled from Wave 1 and Wave 2 data sets collected by the Population Council team as part of their implementation science research. Data for Paper 3 was independently commissioned by the author using respondents from the DREAMS program. The aim of Paper 1 is to examine the domain of financial agency via factor analysis followed by an analysis of relationships between the newly

developed financial agency measure, sexual HIV risk, and partner violence, controlling for relevant co-variates (marriage and highest level of education). Paper 2 seeks to understand the correlational relationships between personal financial agency, sexual relationship power, and reduced sexual HIV risk for AGYW ages 18-25 in Zambia in order to determine if SRP may be a potential mediator between financial agency and sexual HIV risk reduction. Paper 3 uses in-depth qualitative interviews to explore how AGYW in Zambia understand financial agency as a construct and how it does or does not affect their power in intimate relationships.

This research will have important implications for HIV prevention programming for this highly vulnerable group.

Theoretical Framework

Gender and Power

A seminal reading on HIV risk for women and girls, Wingwood and DiClemente (2000) analyze HIV risk through a gender and power theoretical lens (Connell, 1987). Such an analysis views poverty, school separation, and unemployment or underemployment for women to be an outgrowth of the socially constructed division of labor that privileges males in education and income generating activities. Similarly, risk factors such as limited self-efficacy to negotiate condom use or past history of physical or sexual abuse would be viewed within the framework of power relations, specifically the division of power that places women in a subordinate position. Therefore, in order to comprehensively address HIV risk, the theory of gender and power would suggest biomedical, behavioral, or even economic interventions to be insufficient, rather transformative work is necessary to begin to upend the unequal status between the sexes, an inequality that diminishes the personal agency of females in both public and private life. By placing central focus on decision-making power, within both economic and personal domains, this dissertation is predominately guided by the theory of gender and power as its core theoretical construct.

Intersectionality

To further understand the intricacies of why HIV risk is gendered for adolescents and youth in SSA, it is useful to consider Intersectionality theory which posits that one's intersecting identities inform his/her beliefs and experiences (Shields, 2008). When analyzing HIV risk among AGYW in SSA, the social identities of gender, age, socio-economic status, and race are prominent. While mainstream views have been changing over the past several decades, residents of SSA at large, have traditionally held patriarchal views that place men in positions of power politically, economically, and socially (Barker & Ricardo, 2005). Similarly, while efforts at child and youth participation have begun to change perceptions on the importance of adolescent voices, regional norms have historically afforded elders with power, providing minimal opportunities for young people to voice opinions and influence decision-making, particularly young girls (Johnson et al., 1998). Therefore, as an adolescent female in a patriarchal and elder-driven society, one may feel diminished decision-making power and ability to influence her own life. As an adolescent girl living in a low-resource context, the daily experience of economic constraints would also influence one's sense of power and control, perceiving the future to hold limitations rather than opportunities, a hopelessness that has been associated with poor HIV preventative behaviors (Mpondo et al., 2015). Viewing HIV prevention within an Intersectionality lens illuminates the challenges to agency and self-efficacy that exist for low-income adolescent girls in SSA and reinforce the need for interventions to address the inequalities that exist across social identities. The theory of Intersectionality influences this dissertation through the inclusion of age and level of education in all quantitative and qualitative analysis models enabling a more granular examination of economic agency, sexual relationship power, and HIV risk, one that recognizes the additional vulnerabilities for younger AGYW and those with lower levels of education.

Asset Theory

Absent specific theories on economic agency, Asset Theory provides a framework to understand economic power, namely that cognitive and behavioral change are a result of asset accumulation (Sherraden, 1991). Asset Theory recognizes that individuals and households living in resource-constrained contexts have little to no options to accumulate assets. This lack of savings and investment opportunity is thought to affect residents cognitively, resulting in perceptions that income generation need be for the purposes of consumption in the present (Sherraden, 1990). However, when structures for saving are initiated, Asset Theory suggests that even the most resource constrained households can respond positively. The accumulation of assets then increases opportunities which leads to an internalization of future orientated thinking (Sherraden, 1990). Where one may have previously only seen limitations, assets allow for a cognitive restructuring towards possibilities. In other words, this tangible accumulation of assets is theorized to affect behavior by promoting future oriented thinking, increased self-efficacy, and enhanced human capital (Sherraden, 1991).

Asset Theory has been tested within the United States and in SSA. Asset–based programs have shown positive effects on confidence about the future and improved future orientation (Curley, Ssewamala, & Han, 2010: Karimli & Ssewamala, 2016) while also positively influencing health behaviors, such as HIV preventative behaviors and attitudes (Ssewamala et al., 2010a; Ssewamala et al., 2010b; Jennings, Ssewamala, & Nabunya, 2016). Of note is that changes in HIV preventative behaviors and attitudes have thus far been self-reported and not substantiated by biomarker data. Thus, it has not yet been proven that such programs are successful in reducing HIV incidence or prevalence among adolescents.

In the context of HIV prevention, Asset Theory would suggest that the effects of asset accumulation, specifically future orientation and planning, would not simply affect the economic sphere but would also translate to relationships. By constructing plans for the future, AGYW may be

more likely to delay marriage or sexual debut in efforts to avoid the potential consequence of child-rearing (and oftentimes subsequent school separation), with positive outcomes for reducing HIV risk. In many ways, asset programs are well placed in adolescence as popular child development theories consider this developmental stage as a time of greater individuation (Blos, 1979; Erikson, 1994). By enabling adolescents to have a stake in their financial futures, asset programs are promoting their self-efficacy at a time when they are seeking it the most. Within an HIV prevention frame, it could be speculated that this mindset would also carry over to a stronger stand on safer sex. As an adolescent girl seeks to take control of her own financial or educational future, it is plausible that she would also seek greater control over other aspects of her life, including sexual relationships and personal health.

However, asset theory alone assumes that individuals have full control over their behavior. In the context of HIV prevention in SSA, where girls and young women may have limited control over their own sexual encounters, Asset Theory may have limited applicability. Thus, this dissertation aims to build upon this theory with the theories of Gender and Power as well as Intersectionality in order gain a more comprehensive understanding of the multi-faceted dynamics influencing vulnerabilities for AGYW in SSA.

Overview of Three Papers

Paper 1: Economic strengthening, through the provision of cash transfers and other subsidies, has been shown to reduce HIV risk factors among AGYW in sub-Saharan Africa. Yet, little is known about the mechanisms by which improved economic conditions reduce HIV risk for this cohort. This paper examines the domain of "financial agency", a concept which has not been universally defined nor does there exist standardized metrics for measurement. Rather the concept has traditionally been incorporated as a component of larger measures of women's empowerment with the concept of financial agency/autonomy captured under two domains – access to or control over resources and domestic decision-making on financial matters. Mirroring those categories, this study examines the

concept of financial agency (specifically, the ability to have one's own spending money and to make decisions over how to spend that money) through an age disaggregated factorial analysis, a unique contribution to the literature on this topic. Polychoric rotation, Exploratory Factor Analysis (EFA) and Cronbach's alpha were used to identify selected items that represent the latent construct of financial agency and test for the internal consistency of the items. Multi-variate regressions were then employed as predictive validity tests, examining the relationships between financial agency, experiences of violence, and HIV risk factors among AGYW, stratified by age band (15-17, 18-20, and 21-24).

Paper #2: This paper seeks to understand the correlational relationships between personal financial agency, sexual relationship power, and reduced sexual HIV risk for AGYW ages 18-25 in Zambia in order to determine if sexual relationship power may be a potential mediator between financial agency and sexual HIV risk reduction. Using the second wave of panel data from DREAMS program participants (885 respondents), multivariate linear and logistic regression models were used to test the potential pathways for mediation. It documents the process of assessing if the hypothesized pathways in the proposed mediation model are statistically significant and if these relationships differ by age cohort. Results were stratified by age bands 15-17, 18-20, and 21-25.

Paper #3: Recent research has demonstrated that economic intervention delivery to households may have positive effects on reducing HIV risk among adolescent girls and young women (AGYW) in sub-Saharan Africa. Some evidence points to the value of individual financial agency for AGYW and the potential association between decision-making power in the financial realm and decision-making power in sexual relationships. However, this evidence is mixed, nuanced, and limited. This paper seeks to explore how AGYW in Zambia understand financial agency as a construct and how it does

or does not affect their power in intimate relationships. A nested qualitative study design with AGYW who had previously participated in a quantitative survey assessing HIV risk factors was utilized. In-depth qualitative interviews were conducted with 30 females between the ages of 15 and 24 years residing in Kalingalinga, a low income, high density residential area located about 8km east of Lusaka's central business district. Data were analyzed using thematic content analysis.

Conclusion

The concept of individual financial agency has emerged as potentially significant for HIV prevention among AGYW yet the evidence base is still extremely sparse. This three-paper dissertation innovates by taking up the concept of financial agency and examining it within the context of HIV prevention. This research will contribute to the empirical evidence base on HIV prevention for AGYW in sub-Saharan Africa, illuminating the influence of individual economic resources and financial decision-making power on sexual HIV risk.

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Paper #1 – Understanding financial agency among adolescent girls and young women in Zambia: Is there a relationship to HIV risk reduction?

Introduction

Rates of new HIV infections and AIDS related deaths have declined globally, however, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated 2.1 million new HIV infections in 2015, over 60% of which were located in sub-Saharan Africa (SSA). Within this cohort, one quarter of new infections were found in adolescent girls and young women (AGYW), ages 15-24 (UNAIDS, 2016). When including younger adolescents within this estimate, females ages 12-24 account for one third of all new infections in SSA (MacPhail & Pettifor, 2016). The distribution of new infections in SSA shows the vast majority of HIV transmission occurring regionally is through heterosexual sex among non-sex workers and non-injection drug users (UNAIDS, 2016). Statistics have shown a marked gender disparity in new infections with incidence rates for females ages 12-24 surpassing that of their male peers, with estimates ranging from two to eight times higher likelihood of infection, depending on location (Dellar, Dlamini, & Karim, 2015; MacPhail & Pettifor, 2016; Mathur & Gupta, 2016).

This disparity is not new as previous local estimates in HIV hot-spots identified differences in incidence rates between males and females. For instance, in Kisumu, Kenya and Ndola, Zambia, both commercial hubs, sexually active adolescent girls ages 15-19 were six times more likely to be HIV-positive as compared to male adolescents of the same age (Glynn et al., 2001). Using Zambia's DHS Survey from 2007, data show a gender disparity in HIV positive status among those the ages of 15-24 (8.5% female, 4.3 %male) that quickly grows even more disparate between ages 25-34 (22.6% female, 14.3% male), suggesting that patterns ingrained in adolescent years are extrapolating quickly in young adulthood, negatively affecting the health of young females in Zambia. These statistics support the

notion that achieving an AIDS-free generation will be impossible without targeted attention to the unique vulnerabilities of AGYW in SSA.

To date, the majority of HIV prevention efforts in SSA have focused on sexual and reproductive health education; HIV counseling and testing; and reduction of maternal child transmission (Padian et al., 2011). Such initiatives can be described as primarily biomedical and behavioral in their orientation towards prevention. It is only recently that scholars have begun to highlight the critical role that structural drivers play in increasing HIV risk for AGYW, specifically poverty, lack of education, and gender inequalities (Gibbs, Willan, Misselhorn, & Mangoma, 2012; Hardee, Gay, Croce-Galis, Peltz, 2014; MacPhail & Pettifor, 2016; Underwood, Skinner, Osman, Schwandt, 2011).

Indeed, in the past several years, as a mechanism for addressing poverty, a number of studies have examined household cash transfers for reducing HIV risk behavior among AGYW, finding such economic strengthening modalities to have largely positive effects on HIV risk reduction (Cluver et. al, 2013; Cluver, Orkin, Boyes, Sherr, 2014; De Walque et al., 2012: Pettifor, MacPhail, Nguyen, Rosenberg, 2012). However, the mechanism by which these cash disbursement programs affect HIV risk for AGYW has not yet been fully understood. Namely, how does addressing a structural driver such as poverty affect AGYW at an individual level? Is it possible that AGYW that benefit from household transfers have access to greater independent economic resources and the enhanced ability to make their own financial decisions? Does this financial agency then enhance their status in sexual relationships such that they have greater negotiating power in safer sex practices?

This hypothesized pathway has not yet been fully examined given that the broader literature on cash transfers and HIV prevention for AGYW has typically studied the effects of transfers or subsidies to households, or in some cases, directly to schools (Baird, Garfein, McIntosh, & Özler, 2012: Hallfors et al., 2015). While such studies have shown the merit of economic assistance to

resource-poor families, including positive outcomes for female household members, they do not, and were not designed to, comment on how such economic initiatives may affect the individual economic resources or financial decision-making power of AGYW and how such agency may translate to greater power in the intimate relationships of this target population. Indeed, the concept of individual financial agency is just now emerging as a potentially important theme when understanding HIV risk among AGYW in SSA (Jennings et al., 2017; Jennings, Ssewamala, & Nabunya, 2016). Recent analysis of baseline data collected from school-going adolescent girls in South Africa has demonstrated that individual financial resources may be of greater consequence in the sexual decision-making than household measures of wealth (Jennings et al., 2017). Specifically, having money to spend on oneself was associated with a reduced number of sexual partners as well as discussing HIV testing and discussing condom use with partners (Jennings et al., 2017). Similarly, qualitative evidence from low-income communities in Nairobi, Kenya has shown economic assets for young women ages 18-25 to reduce dependence upon men, enabling these women greater power and agency in their health decisions (Austrian & Anderson, 2015).

Building upon this recent work, I examine the domain of "financial agency", a concept which has not been universally defined nor does there exist standardized metrics for measurement. Rather the concept has traditionally been incorporated as a component of larger measures of women's empowerment with the concept of financial agency/autonomy captured under two domains – access to or control over resources and domestic decision-making on financial matters (Malhotra & Schuler, 2005; Mandal, Muralidharan, Pappa, 2017). Mirroring those categories, this study examines the concept of financial agency (specifically, the ability to have one's own spending money and to make decisions over how to spend that money) through an age disaggregated factorial analysis, a unique contribution to the literature on this topic. Associations between financial agency, experiences of violence, and HIV-related risk for AGYW are subsequently explored by age cohort.

Methods

Study Design and Setting

This paper carries out cross-sectional analysis on data derived from the Population Council's implementation science research study on the DREAMS program in Zambia, a public-private partnership to reduce HIV infections among AGYW in ten countries in sub-Saharan Africa. Additional information on the DREAMS program and the Population Council's Implementation Science Program for DREAMS can be found elsewhere (Saul et al., 2018; Mathur et al., 2018). Zambia has an HIV prevalence rate of 11.5 percent among adults ages 15-49 (UNAIDS, 2018) with rates of condom use under ten percent and only one third of the adolescents ages 15-19 indicating they had tested for HIV in the past 12 months (UNICEF, 2018). The most recent Population-Based HIV Impact Assessment (PBHIV) finds Zambia among the lowest of the sampled countries on awareness of HIV status, adherence to ART, and viral load suppression for AGYW ages 15-24 (Brown et al., 2018), indicating a need to better understand the HIV epidemic among this population in Zambia.

Sampling and recruitment

Data were collected in at two study sites – Kalingalinga and Lubuto wards from a total of 1,915 AGYW between November 2016 and April 2017. Respondents were AGYW enrolled in DREAMS programming and a sample of AGYW who reside in the DREAMS program area, but were not engaged in the program at the time of the survey. A census of all 1,064 AGYW ages 15-24 enrolled in the DREAMS program between November 2016 and April 2017 was conducted and contact details of the enrollees were provided to the Population Council by implementing partners. An additional 851 respondents between the ages of 15-24 who were not enrolled in the program were interviewed between March and April 2017. A three-stage sampling strategy was employed to select girls not enrolled in the DREAMS program. Using the 2010 Zambia national census data for the two study sites, ten standard enumeration areas (SEAs) were randomly selected, each with between 30 and 200

households. To obtain the sampling interval for each SEA, the Population Council divided the total number of households in each SEA by expected number of interviews (mean sampling interval for Kalingalinga was 4 and for Lubuto was 3). At the household level, if two or more eligible girls were found at a selected household, a Kish grid was used to select one to interview. The Kish grid is a method for selecting household members for interview that uses a pre-assigned table of random numbers to guide the random selection. If the eligible girl was not available, three attempts were made to contact the girl. In total, 23 participants refused to interview.

Measurement

The outcomes of analysis for this paper were HIV sexual risk, as measured by four questions within the DREAMS survey 1) is respondent currently involved in any sexual relationships, 2) what was the respondent's frequency of condom use in past 12 months, 3) has the respondent's partner had other sexual partners in the past 12 months, 4) has the respondent obtained an HIV test in the past 12 months; and exposure to violence was measured by two questions within the survey 1) has the respondent experienced sexual violence by a partner in the last 12 months, 2) has the respondent experienced physical violence by a partner in the past 12 months. The questions within this module are based on past Population Council work in the region and the Rakai Community Cohort Surveys (Hewett et al., 2017; Kouyoumdjian, 2013: Reynolds et al., 2011). Highest level of education and ever been married were included as control variables.

Modeling prior measurement efforts of women's empowerment scales (Malhotra & Schuler, 2005), financial agency was measured through thirteen questions on independent financial resources and decision-making power on expenditures. Sample questions include, "In the past 6 months, did you use your own money to pay for […] or did someone else give you more for […]?", "In the past 6 months, did you have to ask for permission to spend money on …?", and "Who decides how the money you earned in the last year is spent?" Inquiries reflected common items that AGYW might

purchase who resided in the area such as airtime, snacks, clothing, or entertainment. [Table 2]. Questions were derived from prior Population Council work in the region, including Zambia, and have been tested and refined in multiple contexts (Austrian et al., 2016; Hewett et al., 2016). In the original survey tool, questions on financial agency had variable forms of Likert scale response options that were re-coded for the purposes of the scale (1=full dependence/reliance on another person, 2=joint spending/decision-making, 3=full independence).

Analysis

Baseline data from 1,915 AGYW in Zambia, between the ages of 15 to 24, was utilized for this analysis. An exploratory factor analysis was conducted in order to understand the underlying theoretical structure of financial agency and measure its construct validity. Costello and Osborne (2005) have recommended a 10:1 participant-to-item ratio to conduct an EFA. The number of items included within the factor analysis is 13 thereby requiring 130 participants per age cohort to run an EFA on the concept of financial agency. The sample sizes responding to questions on financial agency were (n=556), (n=639), and (n=720) respectively, thus sufficiently large to carry out the factor analysis. The EFA was conducted using principal axis factoring with oblique rotation for the 15-17 age cohort. For the 18-20 and 21-24 age cohorts, principal axis factor with a polychoric correlation matrix was used. Items with factor loadings greater than 0.30 were retained (Nunnally, 1978; Raykov & Marcoulides, 2011). Internal consistency of items for each age group were examined using Cronbach's alpha (Cronbach, 1951). Coefficient alphas greater than recommended thresholds of 0.70 and 0.80 indicated stronger internal consistency. The scale demonstrated a Cronbach's alpha range from 0.87 to 0.92 depending upon age cohort [Table 2].

Co-variate adjusted multivariate analysis was then conducted to consider whether or not the construct of financial agency was associated with sexual HIV risk and violence outcomes when controlling for age (Brooks-Gunn & Furstenberg, 1989; Steinberg, 2008); educational attainment

(Hargreaves et al., 2008; De Walque 2002) and marriage (Anglewicz & Clark, 2013; Dunkle et al., 2008). Regression analyses for HIV risk utilized a subset of respondents who indicated they were currently sexually active (n=514) whereas analysis for partner violence used a subset of respondents who indicated they were ever partnered (n=1348) regardless of whether they reported being sexually active.

Logistic and linear regression models were estimated using multiple imputation to address missing and incomplete data. In creating the financial agency scale, multiple imputation was necessary to account for the structure of the scale items, which allowed for 'not applicable' responses. Between 7 and 18 percent of responses were imputed for each financial scale item with the exception of decision-making on respondent's earned income which required 85% imputation due to the large number of 'not applicable' responses. Of the sample of 514 sexually active participants, 10-30% of cases had missing or incomplete data on HIV risk factors, depending on age cohort [Table 1], due to skip patterns within the survey instrument. Multiple Imputation using Chained Equations (MICE) was the most appropriate technique chosen to impute complete data for scale functionality. Multiple imputation is a simulation-based approach for analyzing incomplete data; it replaces missing values with multiple sets of simulated values to complete the dataset and adjust for missing data uncertainty (Rubin, 1996). With MICE, imputed datasets are based on a set of imputation models, one for each variable with missing values. Imputations were conducted based on 60 draws to reduce sampling variability from the imputation process (van Buuren, 1999; Sterne et al., 2009).

For this paper, all statistical analyses were individually carried out on three age cohorts 15-17 (n=556), 18-20 (n=639), and 21-24 (n=720) [Table 1]. All statistical tests were considered statistically significant at $p<0.05$. Data were analyzed using STATA v14.0 (College Station, TX, USA).

Ethical Considerations

Study procedures were approved by the Population Council's Institutional Review Board.

Local ethics review and research authorization were also obtained in Zambia (ERES CONVERGE IRB No.00005948 and FWA: 00011697). Both adolescent assent and caregiver/guardian consent were obtained prior to survey administration. Adolescents were consented separately from their caregivers/guardians. Following consenting procedures, the interviewers were conducted by trained female interviewers in private locations, usually within a private space within a local community facility or in or around the respondent's home. The interviewer-administered portions of the questionnaire were conducted in the local language of the respondent's choosing. Zambia-based participants received (ZMW50 Kwacha – approximately $5 USD). The amount of reimbursement was based on recommendation by local IRBs. Representatives of local implementing partners were consulted during the process of survey design and implementation. Participants were offered referrals for medical services in nearby locations, specifically Ministry of Health clinics that were part of the network of the DREAMS program.

Results

Sample Demographic Characteristics

At baseline, the mean age for all survey participants in Zambia was 19.4 years. A relatively high percentage of the cohort were literate (84%) with 40% percent having completed 12th grade and another 14% completing at least some post-secondary school. Only 1% reported Grade Six or under to be their highest level of education attainted. Seventy percent of the sample had ever been in a relationship (sexual or non-sexual). Fifty-two percent reported having had sexual intercourse with a mean age of 17.6 years as the reported age of first sexual experience. Twenty-seven percent were in a sexual relationship at the time of survey with 26.4 the mean age of the sexual partner. Just over 12 percent of the cohort were married or living with a man as if married with higher rates among women in the older age cohort. [Table 1].

Financial agency measure

Individual items were combined into an illustrative scale and then analyzed using an EFA. The EFA extracted a two-factor structure for the age cohort of 15-17 that theoretically fall into the following conceptualizations (Factor 1 – the ability to make one's own financial decisions and Factor 2 – independent economic resources). For the older age bands, (18-20 and 21-24), all items coalesced under a one-factor structure with the exception of whether or not the respondent had Savings which was dropped due to low factor loadings. Internal consistency was examined via alpha coefficients for all three age bands and were robust (>0.87) [Table 2].

For AGYW 15-17, factor one accounted for 49.4% of the variance and factor 2 account for 42.7% of the variance. Among older age cohorts (18-20 and 21-24), factor one accounted for 68.3% and 70.0% of the variance respectively.

Associations between financial agency and sexual HIV risk outcomes

Higher scores on the financial agency scale was associated with slightly higher odds of being sexually active at the time of the interview for respondents ages 15-17 (aOR 1.06, p=0.04, 95% CI 1.00-1.13) and 18-20 (aOR 1.04, p=0.00, 95% CI 1.01-1.07). Among AGYW ages 18-20, those with higher levels of financial agency demonstrated higher odds of obtaining an HIV test in the past year for those who were sexually active (aOR 1.05, p=0.09, 95% CI 0.99-1.1), however this finding was just over the 0<0.05 threshold of significance. HIV testing had the largest correlation to the co-variate of marriage where being in a martial relationship predicted 2.77 greater odds of HIV testing for sexually active young women between 21-24 years of age (aOR 2.77, p=0.01, 95% CI 1.35-5.70) and 6.40 greater odds of testing for those ages 18-20 (aOR 6.40, p=0.01, 95% CI 1.63-25.09). No statistically significant results on financial agency were found for young women between the ages of 21-24 [Table 3].

Associations between financial agency and violence outcomes

Among adolescents 15-17, higher levels of financial agency correlated to higher odds of reporting exposure to both sexual violence (aOR 1.07, p=0.01, 95% CI 1.01-1.12) and physical violence in the past 12 months (aOR 1.05, p=0.047, 95% CI 1.00-1.09). No statistically significant results were found for AGYW ages 18-20 or 21-24 with respect to financial agency. However, co-variate correlations were statistically significant in several models and reported here to provide context to the results on financial agency. Higher levels of education did correlate to reduced violence in the past 12 months with 0.77 fewer odds of experiencing sexual violence for young women ages 15-17 (aOR 0.77, 0=0.00, 95% CI 0.64-0.91) and fewer odds of being exposed to physical violence (aOR 0.81, p=0.00, 95% CI 0.72-0.91) for AGYW 18-20. Among women 21-24, respondents who were married had 2.84 greater odds of experiencing physical violence (aOR 2.84, p=0.00, 95% CI 1.71-4.71) and 0.87 fewer odds of experiencing the same if they reported higher levels of education (aOR 0.87, p=0.00, 95% CI 0.80-0.95).

Discussion

The economic marginalization of females is a long-standing global problem, one that has been shown to influence HIV risk (Harrison et al., 2015; Pascoe et al., 2015) and violence victimization (Jewkes et al, 2017; Thomson, Bah, Rubanzana, Mutesa, 2015). While vast improvements have been made over the last several decades, women's disproportionate experience of poverty remains relevant today as women are less likely to have access to economic resources and power in economic decision-making (Duflo, 2012; UNSD, 2015).

This paper sought to examine the construct of financial agency, the ability to earn and use one's own money independently, a narrow element within a broader sector of research on economic empowerment for women, a sector that continues to struggle with standardized measures but which typically includes metrics such as access to land, participation in the formal labor market, skills training,

asset ownership, education, financial inclusion, and decision-making power (Cornwall, 2016; Buvinic & Furst-Nichols; Vyas & Watts, 2008). At the core of women's economic empowerment is the foundational principle of shifting power dynamics such that women are able to obtain and retain greater power in the economic sphere (Sen, 1997). While practitioners and researchers alike agree that women's economic empowerment sits along a critical path toward broader development goals, consensus on how to measure it, as well as its underlying indicators, has always not been reached (Cornwall & Anyidoho, 2010: Donald, Koolwal, Annan, Falb, & Goldstein, 2017). Where standardization does exist, as in the case in Demographic and Health Surveys (DHS), concepts such as financial agency are often operationalized in a brief selection of survey items on household decision-making (ICF, 2017), which can leave out the experiences of unpartnered women (and partnered women who are not cohabitating), creating a gap in knowledge about the experiences of young females who are aging out of reliance on parents but who are not yet married. Tools to measure the financial agency and decision-making of adolescent girls and young women is lacking, a problem this paper attempted to address.

Additionally, this paper sought to understand the relevance of financial agency on HIV risk and violence outcomes for AGYW in Zambia, comparing experiences across age cohorts. A key finding from this analysis was the differential experience of financial agency, with the construct consisting of two separate factors for girls ages 15-17 (the ability to make one's own financial decisions and independent economic resources). For older adolescents and young women, these two concepts were found to converge into a single construct. This finding demonstrates a variability in the measurement of financial agency when examining it across age bands that extend from adolescents to young adults. This variation may represent the dichotomy that can exist in late adolescence when a female has obtained some autonomy but is not yet fully independent from their parents or caregivers,

making financial decision-making power and personal economic resources two distinct factors that are not always synonymous for this younger cohort.

Further, the interpretation of results for the youngest cohort is also somewhat challenging given their developmental stage. For instance, the freedom to make one's own financial decisions may signify personal agency for adolescent girls yet it may also be representative of a lack of parental supervision, a factor that has been previously associated with earlier sexual debut in a several countries throughout SSA (Peltzer, 2010). Similarly, for younger adolescents, having one's own economic resources may demonstrate financial power and independence but could also be a proxy for the low socio-economic status of the respondent's parent(s) or caregiver(s)s who may be unable to financial support the material needs of the respondent, forcing her to work to pay for goods or services. Given that these findings suggest slight correlations between partner violence and financial agency for adolescent girls ages 15-17 and that lower levels of education were associated with greater exposures to violence, it is plausible that financial agency for the youngest cohort may be indicative of a lack of familial resources. Indeed, literature on transactional and age-disparate relationships in the region has indicated that AGYW do have a certain amount of control of entering into these relationships (and the economic benefits they provide) but have less control over safer sex practices or exposure to violence once involved in the relationship (Hawkings, Price, & Mussá, 2008; Luke, 2003; Ranganatham et al., 2017). More research is needed to understand the nuanced concept of financial agency among adolescents who are transitioning to adulthood and the variety of circumstances such freedom can represent.

In this study, higher scores on the financial agency scale were associated with marginal increases in the odds of being in a sexual relationship at the time of interview for AGYW ages 15-17 and 18-20. These findings represent 6% and 4% greater likelihood of being sexually active for AGYW within the lowest two age cohorts, respectively. Given the small ratios, the findings can be interpreted

as financial agency having a weak or limited correlation with being sexually active. Among AGYW who were already sexually active, financial agency was not protective against HIV sexual risk behavior or IPV. This finding echoes prior research in the region that has found young women in South Africa to self-report high levels of economic independence and agency over their decision-making processes yet concurrently engaged in relationships that are characterized by intimate partner violence, infidelity, and lack of condom use, putting them at risk of HIV (Pettifor et al., 2012). Other literature in the space has cautioned against economic empowerment or other HIV risk reduction programs for women without pairing efforts with those that address broader gender relations (Dworkin & Blakenship, 2009; Gupta, Ogden, & Warren, 2011) which can be viewed as the root of HIV vulnerability and partner violence for AGYW, irrespective of gains in financial agency.

More research is needed to understand the influence of financial agency on the decision-making processes of AGYW in sexual relationships. It is plausible that financial agency may affect some aspects of intimate relationships while having less of an effect on others. For instance, AGYW may be entering into sexual relationships on their own volition, yet may find greater difficulty in negotiating safer sex practices than decision-making on whether or not to enter into a sexual relationship altogether (Closson et al., 2018), suggesting that one's financial decision-making power may not necessarily translate to sexual and relationship power once a female has consented to sex (Jewkes & Morrell, 2012). Alternatively, it is plausible that financial agency does correlate with enhanced negotiating power within sexual relationships, however, access to comprehensive HIV education or health clinics that offer confidential testing may be limited (Butts et al., 2017), negatively influencing HIV protective behaviors between partners (Challa et al., 2018). Qualitative research is needed to explore these potential pathways and provide insight for the design of prevention programming.

For older adolescents and young women (18-20), financial agency was associated with slightly higher odds of HIV testing. This finding should be interpreted with caution given its marginal level of statistical significance and minimal odds ratio. This tentative finding does contradict prior analysis on Zambian women which found no correlation between financial decision-making and HIV testing (Singh, Luseno, & Haney, 2013), however, that study was carried out on an older cohort of married women (ages 25-34) and examined financial decision-making only without reference to earnings. More research is needed to understand if financial agency is influential in HIV-testing decisions and other sexual HIV risk reduction habits, particularly for younger, unmarried women, a concept that is understudied but suggested as promising within existing literature (Jennings, 2017; Ssewamala et al, 2010).

Among the oldest age cohort for this study (21-24 years), no statistically significant associations were identified for either HIV sexual risk or partner violence. It is plausible that higher rates of marriage within this cohort may have influenced results. Because the financial agency coding scheme assigned "joint-decision making with a partner" as having less numeric value than full independent decision making, those who were married at the time of the interview and who engaged in joint decision making would have lower scores. This issue highlights the difficulty with measuring financial agency with partnered women given that joint economic decision-making has been lauded as preventative for IPV (Starmann et al., 2017, Tsai, 2016) and influential in reducing HIV risk (Kyegombe et al., 2014) making it of no less social value than women's independent decision-making. Yet, with the available data, it was necessary to assign numeric values in such a way that economic independence was scored highest to understand its associations with violence outcomes and HIV sexual risk. Future research should seek to untangle if experiences of violence and HIV sexual risk vary between partnered women that engage in joint versus independent economic decision-making.

Limitations

This study is not without limitations. First, because the age demographic under study ranged from 15-24, it is likely that female experiences and understanding of their own autonomy vary quite considerably. For instance, the ability to have one's own financial resources at 15 years of age may be less indicative of personal autonomy than it would at 24 years of age. Further, for adolescents under the age of 18, the relationship between parental supervision and personal agency may be complicated while for females 18-24, marital relationships may complicate experiences of autonomy (as noted in the Discussion section). For respondents under 18 years of age, high financial agency may be serving as a proxy for a combination of low socio-economic status and less parental supervision. Given the plausibility of this scenario, orphanhood (both single and double) was initially tested as a variable but was not found to be explanatory and thus not included in the final model. Other demographics, including marriage and educational status were included as controls within the analyses for each age cohort, in order to capture the nuance and variation by developmental stage and contextual realities in the study sites.

Next, the study employs a cross-sectional analysis which is unable to indicate causality and identified relationships may be bi-directional in nature. Nevertheless, the relationships indicated within the analyses offer corollaries of interest when trying to understand the nature of HIV risk and exposure to violence among AGYW. Future qualitative research is needed to understand the nuance of financial agency, what it means for AGYW in Zambia and how those conceptualizations differ by age cohort.

Further, this study did not have access to biomedical data, therefore, outcomes on HIV were limited to self-reported risk which can pose challenges related to the disclosure of sensitive information. As with all self-report studies on sexual behavior, respondents may feel uncomfortable reporting accurately on sexual risk behaviors, increasing the potential of social desirability bias. To address this potential limitation, the Population Council employed enumerators well-trained on

sensitive topics while conducted interviews in private locations, in the local language, and with an interviewer of the same age and sex to establish rapport.

Conclusion

Higher levels of financial agency may be correlated to a higher likelihood of sexual activity for girls and women between the ages of 15-20 but also associated with protective factors for older adolescents, such as HIV testing, for those between 18-20. Financial agency for the youngest cohort is correlated to violence outcomes, suggesting that measures of financial independence for those ages 15-17 may be representing a lack of parental support and lower socio-economic status. The construct of financial agency is particularly complex for younger adolescents who are still transitioning to adulthood and often still dependent upon parents or caregivers. More work is needed to understand the concept of financial agency and its influence on the lives of AGYW living in HIV endemic regions.

Table 1: Descriptive characteristics of AGYW at baseline (N=1915)

	Age 15-17	Age 18-20	Age 21-24
	Total Sample n= 1915		
Demographic Characteristics	(n= 556)	(n= 639)	(n= 720)
Ever Been Married or Lived with a Man as if Married			
Yes	6 (1.1)	50 (7.8)	185 (25.7)
No	550 (98.9)	589 (92.2)	535 (74.3)
Highest Level of Educational Attainment			
Mean (SE)	9.8 (0.08)	11.3 (0.08)	11.9 (0.09)
Ever Had Sexual Intercourse			
Yes	81 (14.6)	353 (55.2)	565 (78.5)
No	475 (85.4)	285 (44.6)	155 (21.5)
Missing	0 (0.0)	1 (0.2)	0 (0.0)
Currently Involved in a Sexual Relationships			
Yes	29 (5.2)	168 (26.3)	317 (44.0)
No	527 (94.8)	471 (73.7)	403 (56.0)
	N= 514 (sub-sample)		
HIV Risk Factors	(n = 29)	(n = 168)	(n = 317)
Frequency of Condom Use with Primary Partner During Past 12 months			
Always		40 (23.8)	68 (21.4)
Not Always		101 (60.1)	218 (68.8)
Missing		27 (19.1)	31 (9.8)
Primary Sexual Partner Has Other Sexual Partners			
Yes	4 (13.8)	10 (6.0)	24 (7.6)
No	15 (51.7)	90 (53.6)	171 (53.9)
Don't Know	1 (3.5)	41 (24.4)	91 (28.7)
Missing	9 (31.0)	27 (19.1)	31 (9.8)
Obtained an HIV Test in Past 12 Months			
Yes	13 (44.8)	127 (75.6)	262 (82.6)
No	15 (51.7)	41 (24.4)	55 (17.4)
Missing	1 (3.5)	0 (0.0)	0 (0.0)
	N= 1348(sub-sample)		
Violence Outcomes	(n = 284)	(n = 497)	(n = 567)
Experienced at Least One Act of Sexual Violence by a Partner in Past 12 months			
Yes	48 (16.9)	114 (22.9)	122 (21.5)
No	236 (83.1)	383 (77.1)	445 (78.5)
Experienced at Least One Act of Physical Violence by a Partner in Past 12 months			
Yes	62 (21.8)	111 (22.3)	137 (24.2)
No	222 (78.2)	386 (77.7)	430 (75.8)
	N= 1915		
Financial Agency	(n= 556)	(n= 639)	(n= 720)
Financial Agency Scale Mean	19.8 (0.04)	24.5 (0.04)	26.5 (0.04)

Table 2. Final factor loadings for Financial agency Scale Items

Items	Age 15–17		Age 18–20	Age 21–24
In the past 6 months, did you use your own money to pay for […] or did someone else give you money to pay for […]?	**Factor 1**	**Factor 2**		
1. Food, chips, sweets, drinks/soda		0.79	0.73	0.77
2. Clothes/shoes		0.64	0.84	0.84
3. Personal items (beauty products, sanitary towels, underwear)		0.77	0.85	0.85
4. Beauty/salon services (hair, nails, etc)		0.81	0.87	0.87
5. Talk time/airtime/mobile phone		0.57	0.76	0.84
6. Transport		0.72	0.79	0.78
In the past 6 months, did you have to ask for permission to spend money on […]?				
7. Food, chips, sweets, drinks/soda	0.78		0.75	0.78
8. Clothes/shoes	0.86		0.81	0.85
9. Personal items (beauty products, sanitary towels, underwear)	0.81		0.90	0.89
10. Beauty/salon services (hair, nails, etc)	0.91		0.85	0.89
11. Talk time/airtime/mobile phone	0.64		0.86	0.84
12. Transport	0.79		0.75	0.81
13. Who decides how the money you earned in the last year is spent?		0.34	0.71	0.59

Note: Blanks represent abs (loading) <.3

Alphas for final 13-item scale for ages 15–17, 18–20, and 21–24, respectively, were: .87, .91, and .92.

Table 3. Adjusted odds ratios for HIV outcomes on Financial Agency Scale scores, stratified by AGYW age band

Age	Currently Sexually Active aOR, p-value (95% C.I.)[2]	Always used condoms during sexual encounters in past 12 months[1] aOR, p-value (95% C.I.)	Partner had other partners in last year[1] aOR, p-value (95% C.I.)	Obtained HIV test in last year[1] aOR, p-value (95% C.I.)	Experienced sexual partner violence in last year[3] aOR, p-value (95% C.I.)	Experienced physical partner violence in last year[3] aOR, p-value (95% C.I.)
15-17	1.06, 0.04 (1.00-1.13)*	1.03, 0.57 (0.92-1.16)	1.01, 0.89 (0.90-1.23)	1.00, 0.97 (0.90-1.12)	1.07, 0.01 (1.01-1.12)*	1.05, 0.047 (1.00-1.09)*
18-20	1.04, 0.00 (1.01-1.07)*	1.00, 0.84 (0.95-1.04)	1.02, 0.35 (0.97-1.07)	1.05, 0.09 (0.99-1.10)	0.99, 0.69 (0.97-1.02)	1.00, 0.73 (0.98-1.03)
21-24	1.00, 0.83 (0.98-1.02)	1.02, 0.18 (0.99-1.05)	1.02, 0.10, (1.00-1.06)	1.01, 0.48 (0.98-1.05)	1.00, 0.77 (0.98-1.03)	1.01, 0.32 (0.99-1.04)

Significance at $p < 0.05$ with *, at $p < 0.01$ with **

[1]HIV risk factors analysis used a sub-sample of sexually active AGYW (n=514)

[2] All analyses use highest level of education and marriage as covariates

[3] Analysis on partner violence was carried out on a sub-sample of ever partnered AGYW regardless of whether or not they reported being sexually active (n=1348)

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Paper #2 - Does Personal Financial Agency and Sexual Relationship Power Influence HIV Risk for Adolescent Girls and Young Women in Zambia? Findings from a cross-sectional dataset.

Introduction

HIV incidence rates have been on the decline globally (UNAIDS, 2016), yet certain sub-populations have seen their incidence rates increase, bearing an extraordinary share of the HIV disease burden. In Eastern and Southern Africa, the rate of new HIV infections disproportionately affects adolescent girls and young women (AGYW) with up to three times as many young women ages 15-24 living with HIV as compared to their male peers (Karim, Baxter, Birx, 2017). These statistics make AGYW a key demographic for action in order to realize an AIDS-free generation. To most effectively intervene, researchers must examine the rationale for higher infection rates among young females.

Part of the enhanced vulnerability of AGYW can be attributed to the biological factors that make HIV transmission more effective within female bodies (Chersich & Rees, 2008; Dellar, Dlamini, & Karim, 2015; Ostrach & Singer, 2015). For adolescent females, risks are even higher as immature reproductive systems and higher susceptibility to inflammation have been indicated as factors in transmission (Arnold et al., 2016; Dellar, Dlamini, & Karim, 2015; Masson et al., 2015).

In addition to the biological risk factors, scholars have recently begun to examine the critical role that structural drivers play in increasing HIV risk for AGYW, specifically poverty, lack of education, and gender inequalities (MacPhail & Pettifor, 2016; Santelli et al, 2015; Ssewamala et al., 2010). Gender inequitable social norms privilege male power and agency in sexual relationships, limiting female's ability in negotiating safer sex (Dworkin, Treves-Kagan, & Lippman, 2013; Harrison, Colvin, Kuo, Swartz, & Lurie, 2015; Pulerwitz, Michaelis, Verma, & Weiss, 2010). Analyzing data from Botswana and Swaziland, researchers found higher levels of gender inequitable beliefs to be associated with increased male-controlled sexual decision making, perpetration of rape, unprotected sex with a non-primary partner, intergenerational sex, and multiple/concurrent sexual partners

(Shannon et al., 2012). Similarly, for older adolescent girls and young women across sub-Saharan Africa (SSA), limited sexual power within a relationship has been associated with inconsistent condom use (Pettifor et al., 2004; Pulerwitz, Mathur, Woznica, 2018; Shai, Jewkes, Levin, Dunkle, & Nduna, 2010; Stephenson, Bartel, & Rubardt, 2012).

The effect of gender norms on the HIV epidemic have also been analyzed at a global scale. Using data from UNAIDS Global Report and the United Nations Human Development Report's Gender Inequality Index (GII), researchers have found a correlation between high levels of gender inequality and heterosexual epidemics (Richardson et al., 2014), suggesting women's lack of personal agency to be a definitive factor in transmission. Indeed, sexual violence inflicted by an intimate partner, a representation of power imbalance in the extreme, has been shown to be interrelated with HIV among women globally (Decker et al., 2009; Jewkes et al, 2006; Jewkes & Morrell, 2010; Kouyoumdijian et al., 2013). However, quantitative studies have yet to make the connection between the power dynamics that influence sexual violence and the power structures that influence financial agency, specifically as it relates to HIV risk.

Gender inequality indeed translates to the sphere of personal finance and household economics. While vast improvements have been made over the last several decades, women's disproportionate experience of poverty remains relevant as women are less likely to have access to economic resources and assets or power in financial decision making (Arbache, Kolev, & Filipiak, 2010; Deere & Doss, 2006; McFerson, 2010; Wekwete, 2014). Where material or monetary deprivations exist, AGYW may be more likely to engage in risky sexual behaviors with intimate partners that offer financial security (Shisana, Rice, Zungu, & Zuma, 2010; Masanjala, 2007; Miller et al., 2011).

These findings support the call for increased scrutiny on the broader structural elements of vulnerability for AGYW and the need to tease out the relationships between interconnected risk

factors. While numerous studies have identified the associations between structural factors and HIV risk for AGYW, few have sought to understand the intersections between personal agency as it relates to finances, power in sexual relationships, and HIV risk reduction.

Using the second wave of panel survey data from DREAMS program participants in Zambia (885 respondents), this paper examines the role of sexual relationship power as a potential mediator between financial agency and sexual HIV risk among adolescent girls and young women (AGYW) in Zambia. It documents the process of assessing if the hypothesized pathways in the proposed mediation model are statistically significant and if these relationships differ by age cohort.

Methods

Study Design and Setting

This paper uses Wave 2 data from the Population Council's DREAMS program in Zambia, a Gates Foundation-funded implementation science effort to identify, link, and retain vulnerable AGYW in comprehensive HIV risk reduction programming. Zambia has an HIV prevalence rate of 11.5 percent among adults ages 15-49 (UNAIDS, 2018) with rates of condom use under ten percent and only one third of the adolescents ages 15-19 indicating they had tested for HIV in the past 12 months (UNICEF, 2018). The most recent Population-Based HIV Impact Assessment (PBHIV) finds Zambia among the lowest of the sampled countries on awareness of HIV status, adherence to ART, and viral load suppression for AGYW ages 15-24 (Brown et al., 2018), indicating a need to better understand the HIV epidemic among this population in Zambia.

Sampling and recruitment

For Phase 2, with support from the DREAMS implementing partners, the research team re-contacted AGYW who had been surveyed during the first round of data collection. The second round of data collection was conducted 14 months after the first round of surveys. Of the 1064 AGYW enrolled in DREAMS interviewed during Phase 1, the research team was able to successfully reach

885 (85%) of the respondents. At least three attempts were made to reach potential participants. Primary reasons for loss to follow-up: unable to locate or schedule interviews or participants moved outside of the district.

At Phase 2, research assistants repeated the consent/assent process with each participant. Interviews took place in convenient, private locations, such as a private room of the local implementing partner space, the research implementing partner's facility, or an outdoor location where no one can hear the interview. Locations were chosen to ensure comfort and confidentiality for the participant. Each interview lasted approximately 60 minutes. The survey was administered in the language of the respondent's choosing—either English or the relevant local language. Additional information on the DREAMS program and the Population Council's Implementation Science Program for DREAMS can be found elsewhere (Saul et al., 2018; Mathur et al., 2018).

Measurement

Sexual risk was measured by four questions within the DREAMS survey 1) frequency of condom use in past 12 months (always/not always), 2) obtained an HIV test in past 12 months (yes/no), 3) engaged in transactional sex (defined as exchanging sex for money, food, shelter, or any other material good) in the past 12 months (yes/no), 4) experienced sexual violence in last 12 months (yes/no). The questions within this module are based on past Population Council work in the region and the Rakai Community Cohort Surveys (Kouyoumdjian, 2013; Reynolds et al., 2011) as well as the STRIVE Transactional Sex and HIV Risk Guidance (Stoebenau, Wamoyi, Fielding-Miller, & Prudden, 2017). Level of education and marriage were included as control variables.

Two independent variables were selected to understand their relationship with HIV risk– Sexual Relationship Power and Financial agency. An adapted 24-item Sexual Relationship Power Scale (Pulerwitz, Gormaker, & DeJong, 2000), tested with women and girls in numerous contexts within the region (Conroy et al., 2006; Dunbar et al, 2014; Dunkle et al., 2004), was used to assess power

within sexual relationships. Sample items include, "When my partner and I are together, I'm pretty quiet" and "If my partner wants to have sex, he would expect me to agree". Items are scored on a 4-point Likert scale, with 1 = strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree. High scores represent high relationship power. Certain items were reverse scored and the scale has a theoretical range of 26-96. The scale demonstrated a Cronbach's alpha ranging from 0.84-0.87 depending upon age cohort.

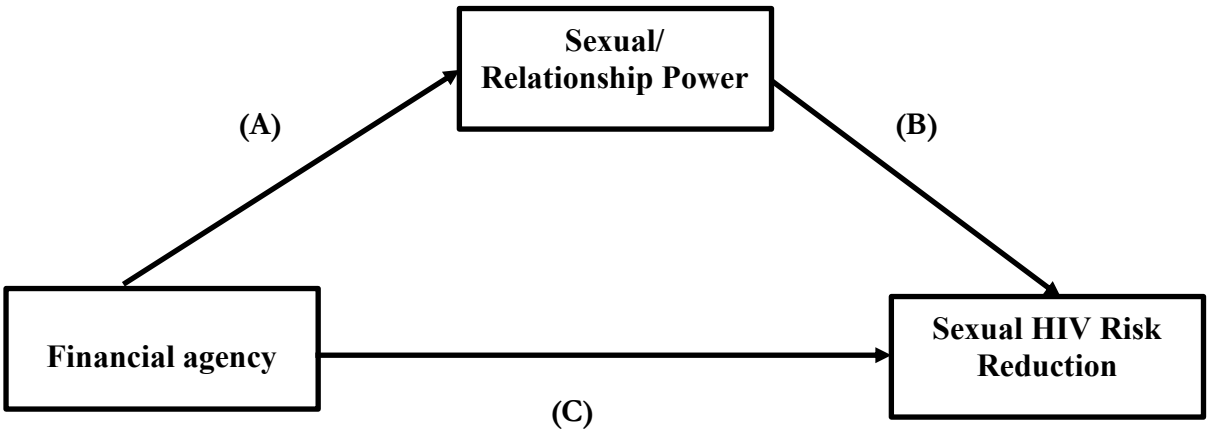
Financial agency was measured through a 13-item Financial agency Scale derived from the Population Council DREAMS Wave 1 dataset, posing a series of questions on independent economic resources and decision-making power on expenditures. Sample questions include, "In the past 6 months, did you use your own money to pay for […] or did someone else give you more for […]?", "In the past 6 months, did you have to ask for permission to spend money on […]?", and "Who decides how the money you earned in the last year is spent?" Inquiries reflected common items that AGYW might purchase who resided in the area such as airtime, snacks, clothing, or entertainment. In the original survey tool, questions on financial agency had variable forms of Likert scale response options that were re-coded for the purposes of the scale (1=full dependence/reliance on another person, 2=joint spending/decision-making, 3=full independence). The scale demonstrated a Cronbach's alpha range from 0.87 to 0.92 depending upon age cohort.

Analysis

The primary aim of this study was to examine the relationships between financial agency, sexual relationship power, and sexual HIV risk to understand if the causal pathways in a hypothesized mediation model (Fig. 1) were valid. Based on the work of Baron and Kenny (1986), for a variable to function as a mediator, it must meet the following thee conditions: (1) there must be significant relationship between the independent variable (Financial agency) and the mediator (path A; Sexual/Relationship Power); (2) there must be a significant relationship between the mediator and the

outcome variable (path B, HIV Risk); and (3) the significant relationship between the independent variable and the outcome variable (path c) must attenuate when paths A and B are introduced.

Figure 1 – Proposed Mediation Model #1



Co-variate adjusted multivariate analyses were conducted to assess the relationship between financial agency, sexual relationship power, and sexual HIV risk when controlling for age (Brooks-Gunn & Furstenberg, 1989; Steinberg, 2008); educational attainment (Hargreaves et al., 2008; De Walque 2002); and marriage (Anglewicz & Clark, 2013; Dunkle et al., 2008). All regressions utilized a subset of sexually active respondents (n=200).

Logistic and linear regression models were estimated using multiple imputation to address missing data. Of the sample of 200 sexually active participants, 27 cases had missing data on at least one item in the Financial agency scale. Multiple Imputation using Chained Equations (MICE) was the most appropriate technique chosen to impute complete data for scale functionality. Multiple imputation is a simulation-based approach for analyzing incomplete data; it replaces missing values with multiple sets of simulated values to complete the dataset and adjust for missing data uncertainty (Rubin, 1996). With MICE, imputed datasets are based on a set of imputation models, one for each

variable with missing values. Imputations were conducted based on 70 draws to reduce sampling variability from the imputation process (van Buuren, 1999; Sterne et al., 2009).

All hypothesis tests were considered statistically significant at $p<0.05$. Data were analyzed using STATA v14.0 (College Station, TX, USA).

Ethical Considerations

Study procedures were approved by the Population Council's Institutional Review Board. Local ethics review and research authorization were also obtained in Zambia (ERES CONVERGE IRB No.00005948 and FWA: 00011697). Both adolescent assent and caregiver/guardian consent were obtained prior to survey administration. Adolescents were consented separately from their caregivers/guardians. Following consenting procedures, the interviewers were conducted by trained female interviewers in private locations, usually within a private space within a local community facility or in or around the respondent's home. The interviewer-administered portions of the questionnaire were conducted in the local language of the respondent's choosing. Zambia-based participants received (ZMW50 Kwacha – approximately $5 USD). The amount of reimbursement was based on recommendation by local IRBs. Representatives of local implementing partners were consulting during the process of survey design and implementation. Participants were offered referrals for medical services in nearby locations, specifically Ministry of Health clinics that were part of the network of the DREAMS program.

Results

Sample Demographic Characteristics

At Wave 1, a total of 1064 DREAMS participants were surveyed, and divided by age cohort for analysis (15-17, n=379; 18-20, n=333; 21-24, n=352). At Wave 2, 885 respondents were retained in the study, representing a 17% attrition rate, aligned with mean attrition rates across international cohort studies (Teague et al., 2018). Wave 2 participants were also divided by age cohort for analysis

(15-17, n=175; 18-20 ,n=302; 21-25, n=407) [Table 1]. The larger number of respondents in the 21-25 age cohort at Wave 2 is representative of young women aging into that bracket. Among respondents who were retained in the study, there was a 7% increase in the oldest age cohort with respect to marriage and a marginal decrease (0.08 and 0.4) in the mean level of education obtained for those ages 18-20 year and 21-25, respectively. No statistically significant differences were identified for the proportion of respondents indicating they were sexually active. Primary rationale indicated by enumerators for loss to follow-up was that the respondent moved outside of the district.

Associations between financial agency and sexual HIV risk (path c)

No statistically significant results were found for AGYW of any age cohort when examining the effect of financial agency on sexual HIV risk outcomes. However, it was observed that participants in the age cohort of 18-20, controlling for marriage and education level, those with higher scores on the financial agency scale were more likely to report currently being in a sexual relationship (aOR 1.05, p=0.03, 95% CI 1.00-1.10) [Table 3].

Associations between sexual relationship power and sexual HIV risk (path b)

Statistically significant relationships between sexual relationship power and sexual HIV risk were only observed in the age cohort of 21-25. Sexual relationship power was associated with higher odds of always using condoms (aOR 1.09, p=0.00, 95% CI 1.03-1.15) and higher odds of obtaining an HIV test in the previous year (aOR 1.09, p=0.03, 95% CI 1.01-1.18). SRP were also associated with lower odds of reported sexual violence (aOR 0.91, p=0.03, 95% CI 0.83-0.99).

Associations between financial agency and sexual relationship power (path a)

For young women ages 21-25, controlling for educational attainment and marriage, for every one unit increase in financial agency there was a 0.18 increase in SRP scores (*b* 0.18, p=0.03, 95% CI 0.02-0.34) [Table 5]. No statistically significant relationships were identified among AGYW in the other age cohorts.

Discussion

The study aimed to understand the relationship between financial agency and sexual relationship power for AGYW in Zambia and their subsequent associations with sexual HIV risk. The results indicated that while higher SRP was highly correlated with a range of lower HIV risk factors, financial agency alone had no such associations.

When analyzing the relationship between financial agency and HIV risk behavior, financial agency had no statistically significant effect for AGYW at Phase 2 of the DREAMS program. In other words, AGYW participating in the DREAMS program were no more or no less likely to self-report condom use, HIV testing, transactional sex, or to have been victims of sexual IPV based on their level of financial agency. The findings suggest that financial agency, on its own, may not be sufficient to influence sexual HIV risk reduction and HIV-related protective behaviors.

There are a number of arguments as to why sexual HIV risk indicators were not associated with financial agency for AGYW. First, it is plausible that transactional sex was not correlated to diminished financial agency because AGYW engaging in transactional sexual relationships may have full autonomy over how to spend that income while also placing themselves in sexual situations at higher risk of HIV transmission. Indeed, qualitative inquiry throughout SSA has shown that AGYW engaging in sex for material or financial gain can feel powerful, considering their bodies as leverage over a weaker sex (Wamoyi, Fenwick, Urassa, Zaba, & Sontes, 2011) viewed with varying levels of respectability depending up on the nature of the relationship and social class (Fielding-Miller et al., 2016). While these relationships may actually provide women power and agency financially, there are trade-offs as their HIV risk reduction strategies can be at the mercy of the male partner providing the financial or material benefit (Zembe, Townsend, Thorson, Ekstrom, 2013; Bandali, 2011).

Similarly, HIV testing was not associated with financial agency for the age cohorts under study. In contrast with sexual relationship power which was associated with higher rates of HIV testing,

financial agency was not predictive of testing within the last 12 months. This finding could suggest that testing, a protective factor against HIV transmission, is more heavily influenced by factors other than financial agency, such as stigma or fear, or self-efficacy to seek health services. The literature on voluntary counseling and testing (VTC) in Zambia has indicated that fear and stigma are a key feature in why individuals choose not to test (Jürgensen, Tuba, Fylkesnes, & Blystad, 2012) creating more negative attitudes towards testing when compared to neighboring countries (Kelley et al., 2011). Apprehensions, particularly those that are socially reinforced, likely affect a broad spectrum of females, irrespective of their own personal financial autonomy, a finding echoed in literature from Zambia that has also demonstrated higher financial decision making among young married women to have no effect on HIV testing (Singh, Luseno, & Haney, 2013). Nevertheless, higher levels of sexual relationship power were associated with higher rates of testing for women ages 21-25, suggesting there to be some variation by which females chose whether or not to test and that decision is most likely linked to their sexual agency.

Next, neither condom use nor sexual IPV were associated with financial agency. The findings on condom use and sexual IPV may reflect the fundamental lack of power females face with respect to these risk variables. Whereas HIV testing or transactional sex may have a greater element of autonomous decision-making for females, male condom-use and male-perpetrated sexual violence are elements of sexual HIV risk that are less within the immediate control of females. This suggests that interventions with men and boys are particularly relevant in order to decrease HIV sexual risk for women and girls. Indeed, literature has demonstrated that programs working with men and boys to change gender norms have had marked effects on reduced HIV risk for AGYW (Barker, Ricardo, Nascimento, Olukoya, & Santos, 2010; Dworkin, Treves-Kagan, & Lippman, 2013). Similarly, research has demonstrated that greater power and decision-making power in sexual relationships for females is correlated to reductions in IPV (Krishnan et al., 2012; Pulerwitz, Mathur, Woznica, 2018).

The above referenced studies align with findings from this analysis that demonstrates greater sexual relationship power for women to be associated with reduced HIV sexual risk, including higher rates of consistent condom use and HIV testing for women ages 21-25, illustrating the intersection between decision-making power in sexual relationships and HIV risk reduction. These findings echo numerous studies across East and Southern Africa on the importance of female power in sexual decision-making to reduce HIV risk (Dunkle et al., 2004; Haberland, 2015: Jewkes, Dunkle, Nduna, & Shai, 2010; Jewkes & Morrell, 2010; Shannon et al., 2012). Similarly, sexual IPV, a known HIV risk globally (Stockman, Lucea, & Campbell, 2013; Townsend et al., 2011), was found to be lower among respondents with higher sexual relationship power. This study builds upon existing evidence to highlight the importance of equitable power dynamics in sexual relationships and the need for further programming with males to address inequities.

For women ages 18-20, financial agency was associated with an increase in respondents reporting they were sexually active. For this particular cohort, this relationship may simply be a function of age whereby young women age out of parental care but have not yet wed. In this case, women would have greater power and independence in their financial interactions while at an age when sexual activity is more common. For instance, the completion of secondary school would naturally result in greater economic freedom and responsibility while also a higher likelihood of engaging in sexual activity. However, as noted above, for these sexually active AGYW, we find financial agency to have no influence on HIV risk behaviors.

In sum, the findings suggest sexual relationship power to be highly predictive of HIV preventative behaviors and reduced IPV exposures whereas financial agency was not. However, for the oldest cohort of participates, ages 21-25, we did find a very marginal increase in SRP for young women with higher financial agency scores, after controlling for marriage and education. Thus, while financial agency may not be sufficient on its own to reduce HIV risk or reduce exposure to IPV, it

may be influential in a young woman's sexual relationship power. Taking condom use as an example, one could see how financial agency alone might be insufficient to influence this decision. This indicator of HIV risk, in particular, is very nuanced in its reflection of female agency in that females have less control, making it less of a personal choice for them as it is the choice of their male partner. Therefore, higher SRP, which specifically inquires on the ability to negotiate condom use would be more likely to be associated with this HIV preventative behavior whereas financial agency was not, though financial agency may, for some respondents, be a pre-cursor or simultaneous component to a respondent's sexual relationship power.

Limitations

This study has a number of limitations. First, the concept of financial agency among a sample that includes adolescents is relatively new. This paper uses a financial agency scale that was derived from items within an existing survey instrument. While these items were drawn from prior Population Council work rather than primary data collected for the purpose of scale creation, traditional validity assessments were not employed. Further, qualitative research is needed to examine how AGYW understand the concept of financial agency, how they perceive it to influence (or not influence) sexual relationship power, and how both influence decision making on HIV sexual risk and/or exposure to intimate partner violence.

Next, many of the inquiries for this study relied on data from respondents who were sexually active, a demographic group that was relatively small in comparison to the full data set. The small sample sizes made analysis inconclusive for the youngest age cohort and risk Type II error among the older age cohorts, potentially resulting in a number of "false negative" results. Re-running these models among cohorts with larger samples of sexually active respondents would be beneficial as a complement to this study.

Further, this study did not have access to biomedical data, therefore, outcomes on HIV risk were limited to self-report which can pose challenges related to the disclosure of sensitive information. As with all self-report studies on sexual behavior, respondents may feel uncomfortable reporting accurately on sexual risk behaviors, increasing the potential of social desirability bias.

Conclusion

The premise upon which this paper was founded was the notion that power in financial decisions would translate to power in sexual relationships thereby decreasing sexual HIV risk. Preparatory analysis for a mediation model elucidated the nuance between those relationships and suggested that power within sexual relationships did convert to HIV protective behaviors and that while financial agency did correlate with SRP for the oldest cohort, financial agency on its own was not sufficient to reduce sexual HIV risk or IPV exposures. Thus, this study was unable to statistically verify the needed relationships between financial agency and HIV risk required to begin mediation modeling.

Table 1: Descriptive characteristics of AGYW at Wave 2

	Age 15-17	Age 18-20	Age 21-25
	Total Sample n=885		
	Wave 2		
Demographic Characteristics	(n=175)	(n=302)	(n=407)
Ever Been Married or Lived with a Man as if Married			
Yes	0 (0.0)	7 (2.3)	33 (8.0)
No	175 (100.0)	295 (97.7)	374 (92.0)
Highest Level of Educational Attainment			
Mean (SE)	9.7 (0.1)	10.9 (0.1)	12.5 (0.9)
Currently Involved in a Sexual Relationship			
Yes	9 (5.1)	49 (16.2)	142 (34.9)
No	166 (94.9)	253 (83.8)	265 (65.1)
	N= 200 (sub-sample of sexually active respondents)		
HIV Risk Factors	(n=9)	(n=49)	(n=142)
Frequency of Condom Use with Primary Partner During Past 12 months			
Always	1 (11.1)	21 (42.9)	49 (34.5)
Not Always	8 (88.9)	28 (57.1)	93 (65.5)
Obtained an HIV Test in Past 12 Months			
Yes	6 (66.7)	46 (93.9)	122 (85.9)
No	3 (33.3)	3 (6.1)	20 (14.1)
Engaged in Transactional Sex in Past 12 Months			
Yes	0 (0.0)	3 (6.1)	11 (7.8)
No	9 (100.0)	46 (93.9)	131 (92.2)
Experienced Sexual Violence Last 12 Months			
Yes	2 (22.2)	13 (26.5)	18 (12.7)
No	7 (77.8)	36 (73.5)	124 (87.3)
Financial agency			
Financial agency Scale (SE) (Range: 13-39)	17.6 (0.6)	21.5 (0.5)	26.2 (0.4)
Sexual Relationship Power Scale			
SRPS Scale Mean (SE) (Range: 24-96)	66.1 (0.3)	64.6 (0.2)	68.2 (0.1)

Table 2. Financial agency Scale Items

Items	
In the past 6 months, did you use your own money to pay for […] or did someone else give you money to pay for […]?	
1. Food, chips, sweets, drinks/soda	
2. Clothes/shoes	
3. Personal items (beauty products, sanitary towels, underwear)	
4. Beauty/salon services (hair, nails, etc)	
5. Talk time/airtime/mobile phone	
6. Transport	
In the past 6 months, did you have to ask for permission to spend money on […]?	
7. Food, chips, sweets, drinks/soda	
8. Clothes/shoes	
9. Personal items (beauty products, sanitary towels, underwear)	
10. Beauty/salon services (hair, nails, etc)	
11. Talk time/airtime/mobile phone	
12. Transport	
13. Who decides how the money you earned in the last year is spent?	

Note: Blanks represent abs (loading) <.3

Alphas for final 13-item scale for ages 15–17, 18–20, and 21–24, respectively, were: .87, .91, and .92.

Table 3. Adjusted odds ratios for Financial agency scale scores on HIV risk and violence outcomes, stratified by age band

Age	Currently involved in any sexual relationships aOR, p-value (95% C.I.)	Always used condoms during sexual encounters in past 12 month[1] aOR, p-value (95% C.I.)	Engaged in Transactional Sex in the last year aOR, p-value (95% C.I.)	Obtained HIV test in last year aOR, p-value (95% C.I.)	Experienced sexual intimate partner violence in last year aOR, p-value (95% C.I.)
15-17	1.05, 0.37 (0.94-1.17)	Sample too small	Sample size too small	Sample too small	Sample size too small
18-20	1.05, 0.03 (1.00-1.10)*	0.05, 0.3 (-0.05-0.15)	0.85, 0.17 (0.68-1.07)	0.94, 0.55 (0.78-1.14)	1.1, 0.11 (0.98-1.22)
21-24	0.99, 0.39 (0.96-1.02)	1.05, 0.37 (0.95-1.15)	0.96, 0.34 (0.88-1.05)	1.00, 0.97 (0.94-1.07)	0.96, 0.26 (0.90-1.03)

Significance at $p < 0.05$ with *, at $p < 0.01$ with ** / Analyses of HIV risk factors and violence outcomes use a sub-sample of sexually active AGYW / All analyses use highest level of education and marriage as covariates

Table 4. Adjusted odds ratios for Sexual Relationship Power Scale (SRPS) scores on HIV risk and violence outcomes, stratified by age band

	Always used condoms during sexual encounters in past 12 months aOR, p-value (95% C.I.)	Engaged in Transactional Sex in the last year aOR, p-value (95% C.I.)	Obtained HIV test in last year aOR, p-value (95% C.I.)	Experienced sexual intimate partner violence in last year aOR, p-value (95% C.I.)
15-17	Sample size too small	Sample size too small	Sample size too small	Sample size too small
18-20	1.07, 0.21 (0.96-1.2)	0.82, 0.12 (0.65-1.05)	1.05, 0.62 (0.86-1.30)	0.95, 0.37 (0.84-1.07)
21-24	1.09, 0.00 (1.03-1.15)**	1.01, 0.88 (0.92-1.10)	1.09, 0.03 (1.01-1.18)*	0.91, 0.03 (0.83-0.99)*

Significance at $p < 0.05$ with *, at $p < 0.01$ with ** / Analyses of HIV risk factors and violence outcomes use a sub-sample of sexually active AGYW / All analyses use highest level of education and marriage as covariates

Table 5. Adjusted linear regression coefficient for Financial agency scores on Sexual Relationship Power scores (SRPS, stratified by AGYW age band

Age	*b*, p-value (95% C.I.)
15-17	-0.21, 0.59 (-1.33-0.91)
18-20	0.02, 0.90 (-0.24-0.27)
21-25	0.18, 0.03 (0.02-0.34)*

Significance at $p < 0.05$ with *, at $p < 0.01$ with ** / Analyses of HIV risk factors and violence outcomes use a sub-sample of sexually active AGYW / All analyses use highest level of education and marriage as covariate

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Paper #3 - Intersections of financial agency, gender dynamics, and HIV risk: A qualitative study with adolescent girls and young women in Zambia

Introduction

In 2016, the Joint United Nations Program on HIV/AIDS, referred to as UNAIDS, made a political declaration to reduce new HIV infections to fewer than 500,000 by 2020. Of this number, UNAIDS pledged to reduce new incidence cases among adolescent girls and young women (AGYW), ages 15-24, to fewer than 100,000, requiring a 75% reduction from 2010 (UNAIDS, 2016). The focus on significant incidence reduction among AGYW is based on the disproportionate number of new HIV positive cases found among this demographic, particularly in sub-Saharan Africa where AGYW represent a "key population" targeted for intervention (Dellar, Dlamini, & Karim, 2015; Karim, Baxter, & Birx, 2017; Kasedde, Luo, McClure, & Chandan, 2013). For the year 2017, UNAIDS reports an estimated 5000 new HIV infections per day, 66% of which are located in sub-Saharan Africa (UNAIDS, 2018). Of the 4400 new infections per day that are ages 15 and older, nearly 20% are females between the ages of 15-24 (UNAIDS, 2018).

What puts AGYW in sub-Saharan Africa at particular risk for HIV infection is the subject of much conjecture with gender inequality as a critical underlying factor discussed within the conceptual literature to date (Bhana & Pattman, 2009; Harrison, Colvin, Kuo, Swartz, & Lurie, 2015; Higgins, Hoffman, & Dworkin, 2009; Jewkes & Morrell, 2010; Krishnan et al., 2008) and, in several cases, examined empirically (Gibbs, Willan, Misselhorn, & Mangoma, 2012; Jewkes, Dunkle, Nduna & Shai, 2010; Shai, Jewkes, Nduna, & Dunkle, 2012; Singh, Luseno, & Haney, 2013; Underwood, Skinner, Osman, & Schwandt, 2011). From age-disparate relationships (Evans et al., 2016; Schaefer et al., 2017) to transactional sexual encounters (Jewkes, Dunkle, Nduna, & Shai, 2012; Wamoyi, Stobeanau, Bobrova, Abramsky, & Watts, 2016), as well as the occurrence of sexual violence (Jewkes, Dunkle, Nduna, & Shai, 2010; Stockman, Lucea, & Campbell, 2013), HIV sexual risk for young women in SSA

cannot be well understood without fully exploring the multi-faceted nature of gender inequality and how it influences sexual behavior. Societal norms that reinforce male power and dominance in sexual relationships not only limit female's ability to negotiate safe sex but also condone and perpetuate sexual violence against adolescent girls and young women (Barker, Ricardo, Nascimento, Olukoya, & Santos, 2009; Fleming et al., 2015; Pulerwitz, Michaelis, Verma, & Weiss, 2010). Whether carried out by an intimate partner or through non-partner sexual assault, studies have shown that experiences of sexual violence increase the risk of HIV for females (Campbell, Lucea, Stockman, & Draughan, 2012; Dunkle et al., 2004; Mathur et al., 2018).

Indeed, studies in Southern and Eastern Africa have demonstrated the dichotomy between health outcomes when respondents hold gender inequitable attitudes. In a population-based study in Botswana and Swaziland, gender inequitable attitudes were independently associated with higher levels of male-controlled sexual decision-making, perpetration of rape, unprotected sex with a non-primary partner, intergenerational sex, and multiple/concurrent sexual partners (Shannon et al., 2012). Similarly, in South Africa, a lack of female decision-making power and agency in sexual relationships has been found to be synonymous with inconsistent condom use (Pettifor et al., 2004) and HIV incidence (Jewkes, Dunkle, Nduna, & Shai, 2010), whereas increased relationship power among females in Kenya has been associated with lower levels of sexual violence, higher levels of condom use, and higher knowledge of partner HIV status (Pulerwitz, Mathur, & Woznica, 2018). Collectively, these findings illuminate how gendered norms on sexual power influence HIV risk for young women and girls in several countries within the Southern and Eastern Africa regions, however, the literature is limited on sexual relationship power among AGYW in Zambia specifically.

With young females at increased risk of HIV infection due to gender norms on sexual power, how do personal finances relate, or not relate, to this public health challenge? Several recent studies have tested the correlation between economic strengthening interventions (such as cash transfers,

savings accounts, or financial literacy) and HIV sexual risk among AGYW finding fairly consistent positive correlations between receipt of these economic strengthening interventions and reduced sexual risk behavior (Baird, Garfein, McIntosh, & Özler, 2012; Cluver et al., 2013; De Walque et al., 2012; Pronyk et al., 2008; Ssewamala, Han, Neilands, Ismayilova, Sperber, 2011;). The majority of the literature to date understands these economic strengthening interventions as a mechanism for providing insurance against economic shocks and as an incentive for staying in school, a key predictor of reduced HIV incidence (Pettifor, MacPhail, Nguyen, Rosenberg, 2012), but fewer studies have sought to understand how increased resources affect the thoughts and behaviors of an AGYW, particularly if she has earned her own money and has the power to decide how it is spent. Does this enhanced agency translate into greater power in intimate relationships? Does she feel more entitled to make decisions over her own body once she has the power to meet her own basic needs? And does agency over her body inevitably translate to fewer HIV risk behaviors?

Absent specific theories on financial agency, Asset Theory provides a framework to understand financial power, namely tangible accumulation of assets is theorized to affect behavior by promoting future oriented thinking, increased self-efficacy, and enhanced human capital (Sherraden, 1991). In the context of HIV prevention, Asset Theory would suggest that the effects of asset accumulation, specifically future orientation and planning, would not simply affect the economic sphere but would also translate to sexual relationships, promoting health-seeking behaviors. Relatedly, Sen's Capability Approach echoes similar concepts around access to resources, utilization of those resources, self-efficacy, and well-being (Sen, 1993).

It could, therefore, be reasonably assumed that increased economic resources and/or increased financial decision-making power subsequently translates to greater decision-making power within sexual relationships, followed by a decreased exposure to HIV risk. However, this assumption has not only been tested in a limited number of studies within Zambia (Papers 1-2 of this dissertation)

with mixed results. In many cases, increased economic resources or greater bargaining power in the financial realm did not always directly correlate with HIV risk reduction.

These findings suggest the need for qualitative research to understand the nuances that exist within a construct such as a financial agency and its potential limitations when it comes to reducing sexual HIV risk among AGYW. An enhanced understanding of these intricacies, from young women themselves, can inform HIV prevention interventions and offer insight on both the value and limitations of economic strengthening interventions particularly when considering powerful social norms such as male sexual privilege.

The purpose of this study was to conduct a qualitative assessment of financial agency among AGYW in Kalingalinga, Zambia, in the context of HIV. The following two research questions were explored: 1) How do AGYW understand financial agency within their own lives and community?; and 2) How does financial agency influence, or not influence, their sexual behaviors and HIV risk?

Methods

Study Setting

This qualitative study was carried out in Kalingalinga ward, a low-income and high-density residential area located approximately 8km east of Lusaka's central business district and within Lusaka province which hosts the second highest HIV prevalence rate within Zambia at 15.7% (Government of Zambia, MOH, 2019) The socio-economic status of the residents are mixed, but predominantly low-income. Since the 1970s, Kalingalinga has gone through periodic upgrading of housing and social amenities, such as school facilities, healthcare, water, roads, and street lighting. However, the physical infrastructure still remains largely under-resourced, characterized by poor-quality housing, drainage and sanitation facilities, and limited piped water supply. Economically, the majority of Kalingalinga residents work either in the informal sector or in low paid jobs within public and private sectors. Many are unemployed. Health care in the area is mainly provided by the local public health facility –

Kalingalinga health center. one of several high-volume HIV clinics in the country, providing free HIV treatment and care, including provision of free antiretroviral treatment (ART). (Government of Zamiba, MOH, 2012).

Sample

Participants were purposively sampled across the ward to reach 30 AGYW, with 10 girls from each age cohort (15-17) (18-20) and (21-24) initially selected for interview after which a determination would be made on whether saturation was obtained or additional respondents were required. Purposive sampling used a maximum variation approach (Palinkas, 2015) in attempt to achieve as much variability as possible with respect to highest level of education obtained and partnership status (married or unmarried), as these were considered critical for understanding a diversity of viewpoints (Do & Meekers, 2009; Hargreaves et al., 2008; Singh, Luseno, & Haney, 2013). The study was a nested qualitative study with AGYW who had previously participated in a quantitative survey assessing HIV risk factors among AGYW in this site. The site is one of 21 locations within Zambia, where the mutli-sectoral DREAMS program was being implemented to reduce HIV risk among AGYW. More on the DREAMS program can be found elsewhere (Saul et al., 2018). Individuals were considered eligible for the study if they resided in Kalingalinga ward, were female, and were between the ages of 15-24, and had previously participated in the quantitative survey. Only one resident per household was eligible to participate. [Table 1].

Table 1. Sociodemographic characteristics of participants (n=30)

Characteristic	n	%
Age		
15-17	10	33.3%
18-20	10	33.3%
21-25	10	33.3%
Education		
Attending university	8	26.7%
Attending Basic/Primary (Grades 8-9)	13	43.3%

Attending Secondary (Grades 10-12)	3	10.0%
Not attending (completed Secondary)	3	10.0%
Not attending (completed Basic/Primary)	0	0.0%
Did not complete Basic/Primary	3	10.0%
Marital Status		
Married	5	16.7%
Single	25	83.3%

Data Collection

Qualitative in-depth interviews were conducted by the interviewer with each of the 30 participants individually, in a location where the participant could speak to the interviewer in private. The discussion was approximately one (1) hour in length and was directed by a semi-structured interview guide (Appendix 1) to explore key themes relevant to the research questions, including community expectations with respect to young women and income; how financial decision-making does or does not affect power dynamics within sexual relationships; and how financial independence does or does not influence one's power to protect against HIV. The guide consisted of initial prompts followed by probing questions to understand how answers varied by age, to obtain concrete examples of stated beliefs, and to better understand the values underpinning responses.

All interviews were recorded with the permission of respondents. Some interviews were carried out in English at the request of the respondent. Others were carried out in Nyanja or Bemba and subsequently transcribed to English. Back-translation checks were carried out by bi-lingual speakers.

The research team included one female Zambian interviewer, one male Zambian field coordinator, and one female bi-lingual staff carrying out transcription and translation. One researcher from Columbia University conducted the data analysis, which was cross-checked by the U.S.-based principal investigator of the broader DREAMS study and the Zambian field coordinator.

At the study's outset, participants were introduced to the study and provided consent for their participation. For individuals under the age of 18, assent was obtained as well as consent of a parent or caregiver. Researchers reiterated that participation was entirely voluntary and would have no effect on access to benefits of current or future programs. Prospective participants and their parents/guardians were told they were free to withdraw from the study at any time and were assured that all efforts would be made to ensure the confidentiality of responses. Individuals were compensated 50 Kwacha (approximately $5 USD) for their participation. Study procedures were approved by the Population Council's Institutional Review Board. Local ethics review and research authorization were also obtained in Zambia (ERES CONVERGE IRB No.00005948 and FWA: 00011697).

Analysis

Thematic analysis of qualitative data was applied in order to incorporate both inductive and deductive analytical approaches (Creswell & Poth, 2017). Inductive approaches were needed to identify new themes that emerged from the data, given that the concept of financial agency and its relationship to sexual HIV risk reduction is largely understudied for this demographic group. At the same time, deductive analyses were useful to explore themes that do exist in the current literature – such as the theory of gender and power in the context of HIV risk (Wingood & DiClemente, 2000). Content analysis and inductive thematic analysis (Thomas, 2006) was used to identify new themes emerging from the transcripts. Transcripts were reviewed and a codebook was developed, iterating from initial open codes through the addition and revision of new codes. Preliminary themes were identified and initial codes used to highlight relevant quotes. The lead analytical researcher then collated the codes to generate the emergent themes. Four emergent themes were identified encompassing 19 axial codes. Data were also analyzed by age groups/bands to understand variability by developmental stage. After review of twenty transcripts, no new themes were identified, indicating

that saturation had been achieved. Nevertheless, content and quotes from all thirty transcripts were included within the analysis.

Results

Sociodemographic characteristics of the sample (n=30) were as follows: 33.3% of the sample were in each of the following age cohorts (15-17) (18-20) (21-25); 83.6% of the sample was single, 26.7% were attending university, 53.3% were attending either primary or secondary school, and 20.0% were not in school, split evenly between those who no longer attended after completing secondary school and those who never attended secondary.

This study sought to examine the constructs of financial agency, gender, and HIV risk reduction among AGYW, between the ages of 15-24, in Kalingalinga, Zambia. Four distinct themes emerged, relatively unilaterally across age bands, and are described below.

Theme #1 – Young women as income earners – rationale and sources of income

Young women spoke of the importance of females earning their own income, particularly beginning around the ages of 18-20. While women may still receive some support from parents at or after this age, respondents wanted to earn their own money to both ease financial pressures on their parents and to purchase items about which they may not wish to inform their parents such as sanitary pads, lotions, perfumes, clothing, and other personal items. Other respondents considered economic activity for women necessary to reduce dependence on a male partner, either for their perceived lack of reliability or simply the position of vulnerability it which such reliance places females. A 23-year-old University of Zambia (UNZA) student offered, "men are not really reliable". A 16-year-old grade eight student noted, "Yes, they (AGYW) need to earn their own money because you can't just sit. You can't just wait upon your husband on an empty stomach from morning to evening for him to get off from work and come give you money." Others were influenced by various social pressures to engage

economically. A 23-year-old woman living in Kalingalinga stated, "This time in our country you can't just sit as a woman. You have to be doing something. We see it on tv."

Sources of income for AGYW were varied depending upon age cohort. For AGYW under 18, the common perception was that adolescent girls would rely on their parents or guardians for support. When adolescents under 18 brought money home, it was commonly noted that parents would be suspicious and concerned about where they obtained the money. A 15-year-old Grade 8 student stated, "If I start doing anything to earn my own money my Mum will say it is bad for me because I am little." Similarly, an 18-year-old Grade 9 student said, "If she (mother) sees me with money, she will ask where I got the money from, so it is better I ask her for money." However, this reliance on parents/caretakers was limited to those girls whose parents/caretakers were alive and physically or financially able to provide such support. Several respondents did not have that luxury and began working from a young age in order to support themselves.

Economic activity was most commonly discussed as an option for young women ages 20-25 but was also noted as an option for adolescent girls under 20 whose parents or guardians were unable to fully support their basic needs. Economic activity was exclusively in the informal economy, labeled as "piecework". For women at the university (26.7% of the sample), plaiting and blow-drying hair was common, as well as re-selling men's clothing or women's cosmetics, including via advertisements on social media. In the settlements or in the home villages of university students, young women bought goods at cost and re-sold for a mark-up, including clothing, shoes, or housewares. Selling cooked fritters or 'freezits' (popsicles) were also commonly discussed. Women were also selling vegetables, employed as maids, or selling mobile phone airtime.

While all but two respondents indicated that earning one's own money (at a certain age) was preferred, several noted that AGYW in their community were not all like them and indeed, respondents were a subset of their community in that they had participated in the DREAMS program.

A 20-year-old 12th grade student suggested that her friends would prefer to rely on boyfriends for support, saying that some of them were too 'shy' to find "piecework," which left having a boyfriend as the only viable alternative for financial support. Indeed, obtaining financial resources or material goods from men was commonly mentioned throughout nearly all of the interviews. It was widely acknowledged that boyfriends were another source of income for AGYW, in addition to or in lieu of parents. A 23-year-old non-college age woman living in Kalingalinga reiterated that 'sugar daddies' were always readily available for girls that desired materials items that they nor their parents or guardians could afford. It was viewed as a parental responsibility to tell one's daughter to stop engaging in age-disparate relationships for the purposes of material gain, but respondents noted that not all parents were emphatic about ending the relationships, particularly when there were few alternatives for young women to earn income or support the household. This dependence upon an older man ('sugar daddy') as a household survival strategy was viewed by respondents as a moral failing and indication of poor parenting.

Irrespective of level of education or the rationale for economic activity, the concept of earning one's own money was universally appealing and spoken about with relation to independence, freedom, and power. When asked about how a woman who makes her own money might feel about herself, a 22-year-old UNZA student commented, "She feels great because she doesn't need to depend on anybody". Another student discussed her own earned income and how it made her feel, "I feel proud and it builds up one's confidence…You feel like okay, if I can do this thing, I can do even more." Speaking about her home village, a 22-year-old UNZA student noted, "For example, if you are in Kasempa and you are earning money, it gets you the opportunity to make decisions at home." Girls attending primary and secondary school, as well as those who had left school, also revered income generation from women, articulating that women feel pride in knowing that the money was obtained through 'legitimate' means. A 16-year-old grade eight student commented, "She feels happy because

the money she is earning is genuine. It's not like she earned it through sleeping with a man. No, she is free because she works for that money.". Respondents of varying levels of education and socio-economic status reiterated that a woman of independent financial means would be 'proud', 'confident', no longer facing an 'inferiority complex.'

***Theme #2*–Perceptions of an independent woman: By age and socio-economic status**

In and around Kalingalinga, the modern ideals of female economic activity intersected with more traditional values and norms of women being reliant on men, first in a parent/child relationship and then in a marital relationship. For instance, many women, particularly those who were attending university, viewed financially independent females as role models and felt they could also be the same for younger women. A 23-year-old UNZA student commented, "I think if girls are getting independent, you create a better future for the ones coming behind you." Younger women also noted earned income as empowering. When speaking about a hypothetical woman who earns her own money, an 18-year-old Grade 9 student noted, "She feels good because she works for her money and buys what she wants."

Indeed, university-educated respondents, in particular, felt that even in a marriage, women should be earning their own money to contribute to the household budget and to purchase personal products.

> *It is cool for a lady to earn her own money rather than depending on her man. Because there are some men who become quite violent. Quite alright you have to respect your husband and all that but as a lady you have to be independent. Then you don't always have to ask for these small stuffs from your husband.* – 23-year-old UNZA student

Yet, respondents also noted that while their generation considered this economic independence to be an admirable quality, women in their home villages or those within their home communities who were not financially independent would have mixed feelings and may speak poorly of such a woman. Respondents suggested that many residents within their community would be proud of a financially independent woman for making herself useful and for 'hustling,' but also noting that it would also be looked upon with jealousy and suspicion, questioning whether a woman with her own financial means was engaged as a sex worker or some other form of transactional sexual activity. A 19-year-old Grade 11 student commented, "some people will think she is a good person while others will think she is a bad person…they will be looking at her as a selfish person."

Respondents also indicated that some older people within the community held cultural and religious beliefs that women were to be subservient to their husbands that contrasted with their views on women's financial independence.

> *I have to always lower myself whether I am wrong or right. Even when I am right I have to apologize to him. If they see me doing that (earning my own money and deciding how to spend it), I will be called a 'bad girl'.* -25-year-old UNZA student (married)

> *"If a woman is independent and not married, they (the community) will be think either she is of loose morals or she boasts because she has money – she thinks she can do (whatever she wants) and just live her life without a man".* -23-year-old UNZA student

In contrast with a university setting where financially independent women were viewed as admirable, lesser educated women residing in the settlements who earned their own money and were not reliant on men were often spoken about as potential sex workers. A 17-year-old Grade 9 student

noted, "Mostly young people like ourselves will think she is doing prostitution". Over three quarters of all respondents reiterated this common perception, which was rooted in the realities of the community (many women were engaging in sex work or other forms of transactional sex to obtain financial resources) as well as deeply held cultural and religious beliefs that women should be subservient to their husband and that achieving financial independence as a single woman was 'boastful' and 'arrogant'.

Male Perceptions of Independent Women

The opinions on how males would view financially independent women was rather mixed. Nearly all respondents commented on how intimidated males would be by a woman who earned her own money and was able to care for herself. A 22-year-old UNZA student, speaking about her hometown of Kasempa, "If you are earning your own money, people will actually approach you to say you should tone it down…and tell you that you will not get married (because) married men will be running away from you." A 23-year-old UNZA student felt that men would find financially independent women 'rude'. "They are unapproachable because they have everything…they will be like 'no, she won't be giving me the respect that I need if I was to approach her." Indeed, participants noted that financially independent women were referred to as 'boss ladies' in university-educated contexts.

However, simultaneously with the notion that women who earned their own money could be seen as unapproachable by men, several respondents did mention how some men would find such industriousness attractive, suggesting that plenty of men love women who are independent and challenging.

Theme #3 **– Permission versus consent: The intersection of agency and mutual respect in partnerships**

In the semi-structured interview, respondents were asked not only about their opinions on women that earned their own income but also about who decided how that income was spent. Among students attending university, the thought of women asking for permission from a man as how to spend funds was viewed as 'harsh' and 'degrading', not considered common practice, and frowned upon in a relationship. However, joint decision-making, such that partners openly communicate with one another and agree upon how money should be spent was considered healthy and promoted within the community. The concept of creating a household budget that was agreed upon by its adult members was widely accepted.

Conversely, seeking permission from a male partner to spend money was viewed as more normalized in lesser educated settings, particularly for married women. While not the experience of most university-going women, several had stories of friends back in their home village or in the settlements. They equated such dependency on a man with a loss of personal agency. Such a scenario was viewed by a 22-year-old UNZA student as no longer having a 'platform' to assert one's rights or voice.

> *I think that sometimes it (seeking permission from a husband on spending) is out of fear. For example, he has given me money (and said) 'Go and do this and this'. Then I have made my own budget and failed to meet his expectations. Then what does he do? He scolds me. Then he starts saying 'You are useless. You don't know how to use money.' I think that can make someone seek permission from a husband... out of fear.* -25-year-old UNZA student (married)

Even for women where permission-seeking was more common, nearly all respondents commented that household finance should ideally be a mutual exercise between spouses. Joint budgeting exercises were routinely brought up as the proper course of action in martial relationships. Discussions on

spending with one's partner was viewed as a sign of mutual respect. Yet, simultaneously with this perception of joint decision-making were long-held views on hierarchical power structures within marital relationships. When speaking about a married woman who earned and spent her money freely, an 18-year-old high-school student noted, "People would say that this woman doesn't fear her husband. She does what she thinks is right in her head and her husband doesn't rebuke her." University-educated students also spoke about these cultural norms.

> *My friends would say, 'No, as a lady, you're <u>not</u> supposed to be so self-confident about yourself.' 'You're supposed to submit when you have a partner.' 'It is wrong for a lady to be so self-confident that you feel like you are the boss.' But when I think about it, it is not right for someone to just abuse your rights. I will stand on my ground of being confident."* -23-year-old UNZA student

Largely, unmarried women were exempt from seeking counsel on finances. They exhibited and spoke of freedoms and agency that were not afforded to women that entered into marriage, a partnership that is still highly promoted for young women with the community. Marriage, as a construct, was heavily influenced by Christian conceptualizations of male headship. Even though opinions on joint decision-making on household finances had become more egalitarian and were widely supported, married women's agency was still heavily influenced by cultural and religious norms of male dominance. Financial independence afforded a sense of agency over one's life, and it gave you power to reject unwanted, violent, or abusive relationships. Yet, respondents noted that some women, particularly non-college educated married women, simply felt trapped, knowing that they did not have the training or skill to know where or how to start becoming economically active.

It (financial independence) is very important because if you are earning your own money, you will have a kind of dominion over your own life. If you are earning your own money, nobody will toss you around here and there when it comes to men…Many people stay in marriages because they have nowhere to go. (They think), 'If I have to leave today I will have to hustle out there and I don't even know where to start'. -23-year-old UNZA student

You can easily refuse but there are those women that are married. Let's say you are not working and you only depend on your husband. He tends to be abusive because he knows he is the one who owns everything. So for those who are not financially stable (on their own), I think they are vulnerable in such areas. -23-year-old UNZA student

Other respondents echoed this sentiment, stating that they knew women who allowed men to make all of the decisions in their relationship out of fear that the man would leave, a scenario they recognized as placing women in a position of limited power and agency and one that was likely rooted in the woman's economic powerlessness.

***Theme #4* – Financial agency influences power in sexual relationships: but constraints for women remain**

Sexual transactions as financial transactions

Transactional sex was widely noted as an opportunity for AGYW to address their material needs and wants, both within university-educated circles as well as within lower-income settlements among females not attending university. Transactional sexual encounters fell along a spectrum from more formalized sex work to age-disparate 'sugar daddy' relationships to informal transactions

between males and females at parties or dance clubs. A 22-year-old UNZA student noted, "A person who pays for your alcohol decides what is to be done that night."

When speaking about how women earned money in Kalingalinga, a 23-year-old woman who left school in grade 9 noted, "some earn on their own through plaiting hair. Some have boyfriends. As you know, here where we stay, a lot of things happen." Similarly, a 15-year-old grade nine student commented, "Some people, if they don't work and they want to earn money, they will start patronizing bars to look for men to have sex with them in exchange for money."

Indeed, when participants were asked their opinions on women's financial independence and how it did or did not influenced HIV risk, the most prominent emergent theme was that AGYW no longer had to engage in such transactional sexual relationships.

> *…when you go to a man and he gives you money, that is when he will use you... When you use his money, you would feel guilt and fail to refuse when he asks for sex. If he wants to sleep with me and he gives me money, how do I refuse? He may be buying you gifts like expensive phones so where do you refuse when he asks for sex? But when you have money, you have the power to say 'no'.*
>
> -20-year-old Secondary School Student

> *It is easy for me to say 'no' even if my partner gets upset because I know even if he leaves, I will still be able to stand on my own. But if I know he is my main source of income, I know that if he gets upset, then things won't be too well with me, so what do I do? I will give in to whatever he wants.*
>
> -23-year-old UNZA student

> *Because most of the women get HIV from looking for things. They are looking for money to solve issues and wanting to buy new stuff. But this woman who earns her own money has everything to*

herself. She has money. What would she be needing a man for? – 20-year-old Secondary School Student

Similarly, a 22-year-old UNZA student, "If you are buying your own beers and doing it all yourself – no one will decide for you." A 19-year-old UNZA student echoed this point, "Most women sleep with different men to obtain money but if you are independent, you wouldn't engage… you would have a better way of earning money." Respondents were quick to note that independent financial resources (or lack thereof), featured heavily in sexual decision making among women in the community. If financial resources were sparse, AGYW were more willing to engage in transactional sexual relationships to meet their needs.

HIV vulnerabilities for women also existed (and were amplified) in villages where some traditions and rituals are centered upon female subordination and lack of agency. Speaking of her home village, a 22-year-old UNZA student noted that when a woman's husband dies, she is made to sleep with someone else for sexual cleansing, a practice she perceived to be a big risk for contracting HIV. However, for widows with financial means, they are able to re-locate after the death of a spouse and avoid such traditions.

Despite the near universal recognition that financial autonomy would lead to greater autonomy in intimate relationships, specifically fewer transactional encounters, participants also noted that financial agency was not a cure-all for reducing HIV risk and that other considerations put AGYW at risk of infection, irrespective of their financial agency. Some noted how younger AGYW, particularly those under 20, may be more easily influenced by their partners. A 23-year-old UNZA student noted, "I mean, it's young love, so you just have to feel like you should do whatever he says. He should tell you what to do and all that." Others similarly echoed this sentiment noting that poor choices could

be made when their decision-making is influenced by love. Several respondents noted that even if women are financial independent, that love can 'confuse' them and cloud their decision-making.

In addition to developmental stage (with younger women seen as more susceptible to influence), forced sexual encounters were also noted as a reality in their community that loomed over women, irrespective of one's financial independence. From meeting a man at a dance club and being raped to forced sex within marriage, sexual assault was an unfortunate reality. Several respondents noted that men felt they had the 'right to sex,' a sense of male privilege which was exacerbated in martial relationships. Respondents across the socio-economic and education spectrum noted that men in the community 'needed multiple partners' and that this did put women at unique risk for contracting HIV.

Condom use and HIV Testing

Nearly half of the respondents indicated that in their community, women had the power in sexual relationships as it was up to them to agree to or deny sex, data that would support findings that financial considerations were the predominant driver in transactional sexual encounters (i.e., with the exception of cases where sex was forced upon them, women had power to agree or deny sex, but these decisions may be motivated by factors other than attraction or companionship). It was also widely acknowledged that women were viewed as the most conscious of and principally responsible for risk reduction behaviors when it came to sex. Whether or not they exercised that perceived responsibility was dependent upon their respective relationships and what they stood to lose from requesting safer sex practices. For some, HIV testing was a pre-requisite to intimacy. It was noted that some young women in and around Kalingalinga demanded testing prior to engaging in a sexual relationship. An 18-year-old secondary school student noted, "If he refuses, then the relationship ends. She will look for someone who will accept to do VCT. That means the girl has power." For

others, requests for testing or condom use put their relationship in jeopardy, a circumstance that was feared by women who did not want to lose their partner, for economic or social reasons.

Sexual activity was noted as common within the community and condom use was the most typical method used to protect against the virus; however, it was widely noted that males did not prefer sex with condoms and were more reluctant than women to go for testing. Respondents across the socio-demographic spectrum reiterated that it was women who were most conscientious about HIV and were the ones to demand testing or condom use. A 20-year-old student at Evelyn Hone college stated, "Ladies mostly are the ones who want to know if the person they want to be intimate with is healthy or not." A 25-year-old mother residing in Kalingalinga settlement also reiterated the notion that females were the ones to promote health-seeking behaviors in an intimate relationship, "for men it is a challenge because they are not strong like girls…They want to do what their friends are doing. So it is not easy for them." A 23-year-old woman who left school in 9th grade and was residing in Kalingalinga settlement also noted that few men agree to wear condoms or get tested for HIV and that women were the ones who must insist on testing prior to entering into an intimate relationship. Yet, again, that responsibility was heavily influenced by the female partner's sense of vulnerability or power within the relationship to request safer sex practices.

Variability between married and unmarried young women

Sexual power dynamics between males and females were discussed as having greater balance and less hierarchy in non-martial relationships. There was a relatively equal share of respondents that believed that men had greater power in sexual relationships and those that felt that women had greater power, with no particular trend in age or level of education associated with either opinion. Yet when asked about sexual dynamics in martial relationships, the large majority of respondents noted that men were in charge as they were the 'head of the household'. An 18-year-old secondary school student noted, "A man is the head of the house. They say when you get married, the man is the one with the

power in the house." A 25-year-old mother in Kalingalinga settlement also noted that women in unmarried relationships who earned their own money and had control over that money had power and control in their sexual relationships. However, in a married relationship, that same woman would no longer have control. It was also noted that physical violence was generally not tolerated in non-marital relationships, but that within marriage, it was more common to be beaten within the home. One respondent also connected the lack of agency within marriage to the issue of property grabbing, noting that when a man dies his relatives will come to assert their rights over the property. Collectively, these comments underscore that a woman's rights within a marital relationship were noted to diminish significantly after marriage.

Married and unmarried women alike emphasized the lack of sexual agency and financial autonomy within martial relationships. Respondents noted that power was often divided relatively equally in dating relationships but that, as noted by a 17-year-old Grade 9 student, "in marriage, men have power". Another 17-year-old in Grade 9 presumed, "some women think that if she refuses what her husband says, then there will be no relationship between them". Other Grade 9 students concurred that "the husband is the head of the house" and that "she (wife) is supposed to follow what a man wants". Yet, when asked if this was in both marital and non-martial relationships, respondents indicated it was only in marriage, "if they are not married, she can have power". A 19-year-old Grade 10 student suggested it was the tradition of bride price, defined as money or assets paid by the groom to the family of the bride, as a potential source of this power imbalance, "the man will come to your family and pay bride price, so that man will control you".

One married woman was verbal about her frustrations with this inequity and shared their own mechanisms for secretly setting aside portions of their earned income. A 23-year-old woman residing in Kalingalinga noted, "I have my own airtel account where I put my money…He can't be auditing me. That is my business. If you show him all the money he will start telling you what to do with it.

So, I put some aside." Such practices show an internal resistance to power dynamics within marriage, particularly for women who begin to earn their own money, however, it was not clear how this resistance did or did not influence this woman's sexual relationship with her husband and her level of autonomy to press for risk reducing behaviors.

Discussion

This paper has explored the construct of financial agency and its influence on power dynamics within sexual relationships, particularly those dynamics that affect HIV sexual risk. The findings offer numerous qualitative insights on the value and limitations of financial agency in sexual decision-making for AGYW in urban Zambia. These findings help address a gap in the evidence with respect to linking independent financial resources and financial decision-making power to reduced HIV sexual risk and help to contextualize the limited number of studies that have aimed to quantitatively examine those relationships (Jennings et al., 2017).

The findings illustrated how AGYW associate financial agency with influence, power, and confidence for women in their community yet also highlighted how that power is viewed locally, namely in a way that is prejudiced by social norms that privilege males within society. Women earning and having control over their own money were viewed in one of two ways, either as 'boss ladies' or as women trading sex for material gain. These viewpoints are long-held gender norms derived from imported Christian ideologies as well as an economic structure that has long enabled men as the primary breadwinner, keeping women reliant on their spouses for economic support and social status (Evans, 2015). Deviating from those norms would call into question a female's 'respectability' (Evans, 2015), a concept that was echoed in this study. Yet, also reiterated in interviews with these young women is that those social norms were evolving, particularly among younger and more educated residents. Indeed, recent qualitative research in Zambia has indicated some flexibility with respect to gendered divisions of labor, potentially brought on out of necessity by a lagging economy, but

nonetheless one that enabled women to participate more fully in the labor market and be seen as equally capable of leaderships roles (Evans, 2016; Foster, Dixey, Oberlin, & Nkhama, 2012). Thus, as more women enter the labor market and earn their own incomes it normalizes this concept within a society and perpetuates a cycle of empowerment, a concept that was insinuated in this study as several respondents discussed the importance of being role models to younger women.

Whether and how financial agency influences HIV risk reduction was another key question of this analysis. On one hand, respondents overwhelmingly considered a reduction in transactional sex to be an outcome of increased financial agency while on the other hand, male sexual privilege was still considered a defining feature within society, one that would place females at risk of HIV regardless of any bargaining power that resulted from increased economic status. Indeed, when considering theoretical frameworks such as Asset Theory (Sherraden, 1991) or the Capability Approach (Sen, 1993) in the context of gendered power dynamics, the relationship between money and self-efficacy may be less linear and fraught with roadblocks for females.

For instance, this study illuminated the complexities women face when it came to sexual power. In many cases, the threat of forced sex was considered a reality that was a persistent HIV concern for AGYW in the region under study and one that is highly reflective of perceived male dominance and power in sexual relationships. At the same time, women were perceived to have a fundamental power in intimate relationships, specifically when it came to health seeking behaviors, but those decisions were often heavily influenced by their economic needs and other considerations. Whereas women with fewer financial means were perceived to have fewer alternatives and thus a greater propensity for engaging in transactional or otherwise risky sex, women with financial independence, particularly single women, had the power to negotiate safer sex practices. Such women felt free to dismiss potential sexual partners if they are unwilling to undergo HIV testing, supporting the evidence that testing has been shown to be persistently higher among women than men on the

continent (Stephenson, Elfstrom, & Winter, 2013). However, it should be noted that this type of agency was inferred to be most powerful at the initiation of a relationship, during the selection of an intimate partner. Previous literature has noted that female agency in a dating relationship can diminish after a young woman has consented to sex (Jewkes & Morrell, 2012; Pulerwitz, Mathur, & Woznica, 2018) as she may feel the need to acquiesce to her male partner's requests in order to maintain the relationship.

Power to negotiate condom use was not as explicit, even at partner selection, as some respondents preferred sex without condoms themselves. Therefore, condom use remained more challenging and its connection to female agency more tenuous as respondents were more likely to describe female sexual agency as reflected in mandatory testing rather than use of condoms, a finding that supports quantitative examinations of financial agency and HIV sexual risk for this age cohort in Zambia.

Findings indicated that AGYW considered a decrease in transactional sex to be the primary mechanism of change that tied financial agency to sexual HIV risk reduction. From more formalized sex work to age-disparate 'sugar daddy'-style relationships, girls and women in and around Kalingalinga were faced with the alternative of trading sex for money or material goods if they were unable to meet their own needs. Transactional sexual relationships are common in the region (Leclerc-Madlala, 2008; Ramjee & Daniels, 2013; Stoebenau, Heise, Wamoyi, & Bobrova, 2016). Respondents suggested that for unmarried women, earning one's own money would be a critical path forward to achieving one's goals and significantly reducing transactional sex, a known HIV risk factor (Jewkes, Dunkle, Nduna, & Shai, 2012). This finding about female economic independence and its potential to reduce the need to become involved in transactional sex suggests there may be benefit to including efforts to promote financial agency and independence among young women within HIV risk reduction programs in the region. However, in doing so, implementers must take into consideration

sustainability and operate within an economic context where businesses can feasible succeed in the long-term (Dunbar et al., 2010)

Another prominent finding of this study is the way in which power and agency for unmarried women was considered to diminish exponentially once married. Religious and cultural norms on male headship within a marital union heavily influenced both financial agency and sexual decision-making within relationships. What was striking was how much freedom and power was felt by single, economically active women, yet how they recognized that freedom would lessen after they married. For many, the concept of male headship was not ultimately debated or critiqued, simply noted as fact. This finding echoes work in neighboring South Africa, where research has shown that young women can both challenge patriarchal norms in some spheres of influence while enabling the current social order in other realms (Jewkes & Morrell, 2012). Indeed, while many women articulated the importance of financial independence as a mechanism for self-worth and self-sufficiency, many also simultaneously viewed males as being ineffective or unreliable at providing economically; therefore this view of men becomes the impetus for women to become economically active. AGYW's economic activity then affected the power dynamic within a relationship, affording greater power and agency in decision-making, including sexual decision-making, to the woman. Despite this chain of events described by respondents, it was rare to find respondents that considered unequitable gender structures as the broader rationale for HIV risk, even if they spoke on the periphery of these ideas. Evidence has shown that programs for AGYW that situate HIV prevention within larger constructs of gender and power to be far more effective at reducing HIV risk behavior (Haberland, 2015), offering insights for future HIV prevention efforts in this targeted geography and beyond.

The findings on joint budgeting and financial decision-making within marriage were an interesting contrast to the stated lack of sexual autonomy women typically had within a marital union. Unlike sexual decision-making, which was seen as largely the role of a man within marriage, budgeting

and household finance was viewed as an egalitarian, shared effort. While joint decision-making on financial matters can complicate the measurement of autonomy and agency for married or partnered women, it may reflect a structure for mutual respect and support that is non-hierarchical and collaborative. Such positive and affirming relationships can also have repercussions for HIV risk. Indeed, a study in Lusaka found that couples who rated their relationship positively were less likely to engage in risky sexual behaviors (Vamos et al., 2013). Yet, what was unclear from the qualitative data within this study was how much an egalitarian process of joint household budgeting translated to gender equitable roles and norms in other realms of the marriage. The findings from this study suggest that these financial practices do not inherently transfer and that there is work to be done in this space. Supporting this notion is prior literature on married Zambian women (ages 25-34), which indicated no correlation between increased financial decision-making and higher rates of HIV testing (Singh, Luseno, Haney, 2013). This data, in conjunction with our study, suggest norms and roles within marriage may be compartmentalized such that woman who are afforded power in one aspect of the marriage are not afforded that power in another. Certainly, given that joint budgeting is viewed as both logistically and morally appropriate within a marriage in urban Zambia, practitioners may have leverage to promote joint decision-making in sexual and reproductive health choices in a synonymous fashion.

Limitations

This study includes several limitations. First, while purposive sampling is often a key feature in qualitative in-depth interviews, it can only capture the opinions of a relatively small number of respondents, in this case, those residing in one primary geographic area east of Lusaka. While sampling was purposive and informed by a maximum variation approach, sampling bias does exist to favor respondents that are willing and available to participate in the study. Further, given that the study was limited to former DREAMS participants, the findings are biased towards a sub-group of AGYW who

have received some level of HIV prevention information. Thus, findings should not necessarily be generalized to a larger population. Further, the most substantive quotes came from university women with younger adolescents in the study providing fewer lengthy quotes of interest to feature within the paper. Nevertheless, the comments and viewpoints of younger adolescents are reflected in the summary text of the Findings section. Lastly, the data is subject to social desirability bias, given that the facilitator's guide inquired about a number of sensitive questions and taboo topics. Respondents may have felt an internalized pressure to answer questions in a way that was perceived to be 'correct' among DREAMS participants. This study tried to alleviate potential bias by staffing the team with a female facilitator who had several years of experience leading group and individual interviews with AGYW in the area. The facilitator's guide and prompts reiterated the invitation to speak freely and assurances of participant confidentiality.

Conclusion

Financial agency and independence is an aspiration of AGYW in Kalingalinga settlement as much as it is among university-going students. Such agency is, however, tied up with negative community-based perceptions about what it means to be a woman that earns a sustainable income and has control over how that income is spent. Further, the transfer of financial independence to sexual agency within relationships has enormous promise as a mechanism for sexual HIV risk reduction; however, the realities of male sexual privilege remain an obstacle irrespective of financial decision-making power. Women's sexual agency was viewed as far greater in non-martial relationships as opposed to within marriage, where religious mores on headship created a power imbalance. Programs that seek to enhance financial agency among AGYW have the potential to reduce HIV sexual risk. Yet, to be most effective and to address norms of male dominance, which can continue to keep AGYW in positions of vulnerability regardless of their financial power, such programs should consider integrating broader,

gender transformative programming that addresses drivers of gender inequity in sexual relationships, including within marriage.

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Dissertation Implications and Conclusion

This three-paper dissertation provides an exploration and examination of the construct of financial agency and its relationship to HIV sexual risk for AGYW in Zambia. Data for Papers 1 and 2 were pulled from quantitative data sets collected within the context of the Population Council's research about the DREAMS program. Data for Paper 3 was independently commissioned by the author using respondents from the DREAMS program. Paper 1 examined the domain of financial agency via factor analysis followed by an examination of relationships between the newly developed financial agency measure, sexual HIV risk, and partner violence, controlling for relevant co-variates (marriage and highest level of education). Paper 2 examined the correlational relationships between personal financial agency, sexual relationship power, and sexual HIV risk for adolescent girls and young women ages 18-25 (AGYW) in Zambia in order to determine if SRP may be a potential mediator between financial agency and sexual HIV risk reduction. Paper 3 uses in-depth qualitative interviews to explore how AGYW in Zambia understand financial agency as a construct and how it does or does not affect their power in intimate relationships.

Although previous research has demonstrated the promise of household-based economic strengthening interventions, few studies have sought to understand how access to financial resources as well as power and control over those resources influences sexual decision-making. The aim of this three-paper dissertation was to target critical gaps in knowledge on how financial interventions influence HIV risk behavior at the level of individual decision-making among AGYW. Understanding the ways in which gendered power dynamics reach to all aspects of life for AGYW, including access to and control over financial resources, is critical to comprehensively understand HIV risk and vulnerability. Findings are summarized across the three papers followed by implications for HIV prevention and research among AGYW in Zambia.

Summary of Findings

Paper #1: Understanding financial agency among adolescent girls and young women in Zambia: Development and analysis of a scale from DREAMS survey data

This paper sought to examine the domain of financial agency, the ability to earn and use one's own money independently, a narrow element within a broader sector of research on economic empowerment for women, a sector that typically includes access to land, participation in the formal labor market, skills training, asset ownership, education, and decision-making power (Cornwall, 2016; Buvinic & Furst-Nichols; Vyas & Watts, 2008) but at its core is the foundational principle of shifting power dynamics such that women are able to obtain and retain greater power in the economic sphere (Sen, 1997). In addition to examining the domain of financial agency for the age cohorts under study, this paper also sought to understand the relevance of financial agency on HIV risk and violence outcomes for AGYW in Zambia, comparing experiences across age cohorts. Key findings include: 1) Differential experience of financial agency, with the construct consisting of two separate factors for girls ages 15-17 (the ability to make one's own financial decisions and independent economic resources). For older adolescents and young women, these two concepts were found to converge into a single construct. 2) Findings suggest slight correlations between partner violence and financial agency for adolescent girls ages 15-17 and given that lower levels of education were associated with greater exposures to violence, it is plausible that financial agency for the youngest cohort may be indicative of a lack of financial resources within the family and an independence that is born of necessity. 3) Higher scores on the financial agency scale was associated with marginal increases in the odds of being in a sexual relationship at the time of interview for AGYW ages 15-17 and 18-20. 4) For older adolescents and young women (18-20), financial agency was associated with slightly higher odds of HIV testing. This finding should be interpreted with caution given its marginal level of statistical significance and minimal odds ratio. 5) Among the oldest age cohort for this study (21-24

years), no statistically significant associations were identified for either HIV sexual risk or partner violence.

The findings suggest that the experience of financial agency varies by age cohort and may signify very different circumstances for younger adolescents than it does for women in their early twenties. A correlation between financial agency and sexual HIV risk reduction was largely not substantiated with the exception of marginally statistically significant results on HIV testing for 18-20 year olds. The findings echo prior research in the region (Pettifor et al., 2012) that has found young women in South Africa to self-report high levels of economic independence and agency over their decision-making processes yet concurrently engaged in relationships that are characterized by intimate partner violence, partner concurrency, and lack of condom use, putting them at risk of HIV. Other literature in the space has cautioned against economic empowerment or other HIV risk reduction programs for women without pairing efforts with those that address broader gender relations (Dworkin & Blakenship, 2009; Gupta, Ogden, & Warren, 2011) which can be viewed as the root of HIV vulnerability and partner violence for AGYW, irrespective of gains in financial agency.

Paper #2: Does Personal Financial Agency and Sexual Relationship Power Influence HIV Risk for Adolescent Girls and Young Women in Zambia? Findings from a DREAMS cohort.

This paper sought to understand the correlational relationships between personal financial agency, sexual relationship power, and reduced sexual HIV risk for AGYW ages 18-25 in Zambia in order to determine if SRP may be a potential mediator between financial agency and sexual HIV risk reduction at Wave 2 of the DREAMS program. Key findings include: 1) Financial agency had no statistically significant effect on sexual HIV risk reduction for AGYW of any age cohort. 2) For women ages 18-20, financial agency was associated with an increase in respondents reporting they were sexually active. 3) Sexual relationship power (SRP) was highly predictive of HIV preventative

behaviors and reduced sexual violence for women ages 21-25. 4) Financial agency was associated with slightly higher SRP scores for women ages 21-25. Thus, while financial agency may not be sufficient on its own to reduce HIV risk or reduce exposure to IPV, it may have a marginal influence in a young woman's sexual relationship power.

The premise upon which this paper was founded was the notion that power in financial decisions would translate to power in sexual relationships thereby decreasing sexual HIV risk. Preparatory analysis for a mediation model elucidated the nuance between those relationships and suggested that power within sexual relationships did convert to HIV protective behaviors and that while financial agency did correlate with SRP for the oldest cohort, financial agency on its own was not sufficient to reduce sexual HIV risk, including sexual violence. Thus, this study was unable to statistically verify the needed relationships between financial agency and HIV risk required to begin mediation modeling.

Paper #3: Intersections of financial agency, gender dynamics, and HIV risk: A qualitative study with adolescent girls and young women in Zambia

Paper 3 sought to explore how AGYW in Zambia understand financial agency as a construct and how it does or does not affect their power in intimate relationships, data that is critical to designing economic strengthening interventions that are effective at reducing HIV risk. These findings help address a gap in the evidence with respect to linking independent financial resources and financial decision-making power to reduced HIV sexual risk, contextualizing the limited number of studies that have aimed to quantitatively examine those relationships (Jennings et al., 2017; papers 1-2 of this dissertation).

Key findings include: 1) AGYW associate financial agency with influence, power, and confidence for women in their community yet also highlighted how that power is viewed locally,

namely in a way that is prejudiced by social norms that privilege males and dictate what are considered 'respectable' gender roles within society. 2) Power in sexual relationships was nuanced. Women were perceived to have a fundamental power in intimate relationships, specifically when it came to health seeking behaviors, but those decisions were often heavily influenced by their economic needs and other considerations. 3) Women with fewer financial means were perceived to have fewer alternatives and thus a greater propensity for engaging in transactional or otherwise risky sex, women with financial independence, particularly single women, had the power to negotiate safer sex practices (particularly HIV testing). 4) Power to negotiate condom use was not as explicit, as sex without condoms was perceived to be preferential, even for some women. 5) Power and agency for unmarried women was considered to diminish exponentially once married. Religious and cultural norms on male headship within a marital union heavily influenced both financial agency and sexual decision-making within relationships.

The study demonstrated that financial agency and independence is an aspiration of AGYW, however, such agency is tied up with negative community-based perceptions about what it means to be a woman that earns and has control over her own income. Further, the transfer of financial independence to sexual agency within relationships has promise as a mechanism for sexual HIV risk reduction; however, the realities of male sexual privilege remain an obstacle irrespective of financial decision-making power. Women's sexual agency was viewed as far greater in non-martial relationships as opposed to within marriage, where religious mores on headship created a power imbalance.

Research and Practice Implications

Implications for HIV Programming with AGYW

The findings from this dissertation offer insights into HIV programming for AGYW in Zambia that may be relevant in other countries within sub-Saharan Africa with HIV epidemics. First,

the measurement of financial agency is beneficial and should be considered within structural prevention programs addressing economic vulnerability, however, the measure may represent circumstances that are very different for younger adolescents versus women in their early twenties and this should be taken into careful consideration when integrating within a multi-dimensional assessment framework.

Next, this dissertation suggests a need for practitioners to think critically about ingrained gender norms that privilege males, economically and sexually, and how such norms and customs can undermine or temper the effects of economic strengthening programs for AGYW. Practitioners should address the concept of male headship within marriage and work with communities to understand risks and vulnerabilities faced by women under a male headship paradigm. Engaging with communities in a gender transformative way should include participation by men and boys who are necessary for sustainable change. Findings from Paper 3 highlighted the successful societal uptake of joint-budgeting within a household, an egalitarian exercise to promote shared power and control over economic resources. Practitioners can leverage the successful normalization of joint budgeting and transfer that concept to decision-making in the sexual realm.

Lastly, whereas respondents were quick to consider financial independence as a mechanism for reducing transactional sex and thus decreasing HIV vulnerability, practitioners seeking to design programs for young women should carefully analyze the economic context of an implementing environment in order to understand if and how economic interventions can be sustainable and profitable for women (Dunbar et al, 2014). Efforts to move women from the informal to the formal labor market may offer the level of income stability necessary to discontinue reliance on a male partner for income support.

Research Implications

More research is needed to understand financial agency for younger adolescents, determining ways in which to draw out measures of power and autonomy during a life stage that is typically characterized by reliance on parents or caregivers. Additional qualitative work with younger adolescents that specifically explores the daily lives of girls ages 15-17 and the ways in which they demonstrate financial autonomy, even when under the care of a parent or guardian, is warranted.

Further, given that SRP was consistently associated with reduced sexual HIV risk and that increased financial agency did have a marginal relationship to higher SRP scores, there is a need to further scrutinize this set of relationships. How is SRP attained and how does individual financial autonomy influence that bargaining power within intimate relationships? There is a need to continue to interrogate this question quantitatively and qualitatively among this age cohort in Zambia and other HIV endemic geographies in order to further understand this complex and nuanced relationship. Inquiries can be made of males as well to understand power dynamics from their perspective and how financial autonomy for women influences decision-making for a intimate partners.

Social Work Implications

Social work, as a discipline, is well-suited to design and implement HIV prevention programs for AGYW given the emphasis on the ecological systems theory (Brofenbrenner, 1992), which views individual risks and vulnerabilities within a frame of micro, meso, and macro-level influences. Social work practitioners can work with public health professionals to integrate broader gender transformative components within both traditional bio-behavioral HIV prevention programs as well as more novel structural prevention efforts that have addressed economic vulnerabilities for AGYW but not necessarily the larger gender norms that have placed AGYW in positions of vulnerability, economically and with respect to HIV.

Limitations

The analyses within these three papers are not without limitations. First, because the age demographic under study ranged from 15-24, the female experiences of autonomy, and what that represents with respect to HIV risk and vulnerability, vary quite considerably. For adolescents under the age of 18, the relationship between parental supervision and personal agency may be complicated while for females 18-24, marital relationships may confound experiences of autonomy. To address this limitation, analyses were segregated by age band in order to capture the nuance and variation by developmental stage and contextual realities in the study sites.

Next, the study employed cross-sectional analyses in Papers 1 and 2 which are unable to indicate causality and identified relationships may be bi-directional in nature. Nevertheless, the relationships indicated within the analyses offer corollaries of interest when trying to understand the nature of HIV risk and exposure to violence among AGYW.

Further, this study did not have access to biomedical data, therefore, outcomes on HIV were limited to self-reported risk which can pose challenges related to the disclosure of sensitive information. As with all self-report studies on sexual behavior, respondents may feel uncomfortable reporting accurately on sexual risk behaviors, increasing the potential of social desirability bias. To address this potential limitation, the Population Council employed enumerators well-trained on sensitive topics while conducted interviews in private locations, in the local language, and with an interviewer of the same age and sex to establish rapport.

Next, many of the inquiries for this study relied on data from respondents who were sexually active, a demographic group that was relatively small in comparison to the full data set. The small sample sizes made analysis inconclusive for the youngest age cohort in Paper #2 and risk Type II error among the older age cohorts, potentially resulting in a number of "false negative" results. Re-running

these models among cohorts with larger samples of sexually active respondents would be beneficial as a complement to this study.

In Paper 3, the survey design was structured such that it only captured the opinions of a relatively small number of respondents, in this case, those residing in one primary geographic area east of Lusaka. While sampling was purposive and informed by a maximum variation approach, sampling bias did exist favoring respondents that were willing and available to participate in the study. Further, given that the study was limited to former DREAMS participants, the findings were biased towards a sub-group of AGYW who have received some level of HIV prevention information. Thus, findings should not necessarily be generalized to a larger population.

Conclusion

This dissertation empirically examines the relationship between financial agency, sexual relationship power, and HIV risk among AGYW in Zambia, innovating by analyzing findings by age bands in order to scrutinize variation within the target demographic of 15-24. The findings of this research advance understanding of financial agency as a domain, how it relates to sexual HIV risk, and what it means personally for young females in this age bracket. Findings demonstrate that financial agency and its relationship to sexual HIV is complex and not necessarily linear or positively correlated. As money intersects with power and power is entangled with gender the key implication from this research is that power over financial resources does not fully or robustly translate to sexual HIV risk reduction alone. Rather broader gender norms exist that may perpetuate HIV vulnerabilities even as females gain greater autonomy economically and addressing these gender norms is may be critical to connecting financial agency with HIV risk reduction.

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Appendix 1 - Semi-Structured Interview Guide

Age:
Highest Level of Education:
Location:
Married (y/n):

1. In your community, is it expected that young women (ages 15-24) would earn their own money? In what way?

Probe: Does this differ by age or marital status? If yes, how? How important is earning your own money for young women such as yourselves?

2. Within your family or friends, what is the preference for a young woman (someone who is no longer in school) - to earn their own money or have a partner or parent provide financial support? What is your preference & why?

Probe: How do you think a woman who earns her own money feels? How do you think a woman who does not earn her own money feels?

3. In your community, is it typical for a female (ages 15-24) to need permission from a partner (spouse, boyfriend) to spend money she has earned herself? Is it typical for a female (ages 15-24) to need permission from a partner to spend money that a partner has earned? If yes, please describe scenarios.

Probe: Does this differ by age or marital status? If yes, how? How do you think that woman feels? How do you think her spouse or boyfriend feels? Does this woman need to ask for permission in other areas of her life? If yes, provide examples.

4. If a female earns her own money and decides how it is spent, how is she viewed?

Probe: Does this vary by age (between 15-24) or marital status? How is she viewed by men versus women? By older people versus younger people? How do you think this woman feels?

5. In your community, how do girls and women protect themselves against HIV?

Probe: Is it challenging for girls and women to protect against HIV? In what way? Why do you think this is? Is it more or less challenging for boys and men to protect against HIV? Why do you believe that is?

6. Do you believe that a woman's financial independence (i.e. having your own money, and making decision about how that money is spent) influences her power to protect herself against HIV? In what way?

Probe: Do you believe that a woman's financial independence influences her power in sexual relationships (i.e. ability to decide if/when to have sex, when to use condoms, when to get tested for HIV)? Who typically has power to make these decisions in an intimate relationship? What does

financial independence mean with a main/regular partner (boyfriend/husband) vs. non-regular partner and ability to protect herself from HIV?

7. Is there anything else you would like to add? Have we missed anything important to help us understand this topic?

Additional Probes:

- "Tell me more about that". "Can you give me an example?"
- "How does this make you feel?" "Why is this significant to you?" "What influences your thinking on this?
- "Have you always felt this way?" "Has your thoughts on this changed over time?" "If yes, what motivated this change?"